

The Mining And Metallurgical Journal

VOL. XIX. No. 9

LOS ANGELES, CAL.,

August 1, 1898,

SAN FRANCISCO, CAL.

Price 15 Cents

Jessop's STEEL

The Best
FOR

Mining Drills,
Tools, Etc.

I. WILLARD BEAM,
29 Main Street
SAN FRANCISCO, CAL.

THE EDWARD P. ALLIS COMPANY

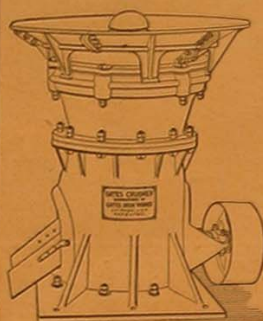
— MANUFACTURERS OF —

Mining, Milling and Smelting Machinery

Crushers, Concentrators, Pumps, Compressors, Hoists, Boilers,
Reliance Crushing Rolls, Reynolds Corliss Engines, &c.

Send for Catalogue.

Milwaukee, Wis.



Gates Rock and Ore Breaker

The Best Crusher Made....
Over 4000 now in use.
Coarse and Fine Crushers for the
Gradual Reduction of Ores.

General Mining Machinery.

Gates Iron Works,

Department 2 650 ELSTON AVE., CHICAGO

THE ROESSLER & HASSLACHER Chemical Co.

100 William St., New York

CYANIDE

Peroxide of Sodium

Hyposulphite of Soda

Chloride of Lime

Sulphide of Iron



Trade Mark

And Other Chemicals for Mining Purposes.

Joseph Dixon Crucible Co.

MINERS, IMPORTERS AND MANUFACTURERS

GRAPHITE & PLUMBAGO

JERSEY CITY, N. J.

RETORTS, CRUCIBLES, GRAPHITE LUBRICANTS, BELT DRESSING,
GRAPHITE PAINTS, LEAD PENCILS, AND GRAPHITE
PRODUCTS OF ALL KINDS.

Send for Production Catalogue.

Graphite Makes the Best Lubricant
and Best Paint.

ADAMANTINE SHOES & DIES

AND

CHROME CAST STEEL

Cams, Tappets, Bosses, Roll
Shells and Crusher Plates.

These castings are extensively used in all the Mining
States and Territories of North and South America. Guar-
anteed to prove better and cheaper than any others. Orders
solicited subject to above conditions. When ordering send
sketch with exact dimensions. Send for Illustrated Circular

CHROME STEEL WORKS,

Kent Ave. & Keap St., - BROOKLYN, N. Y.



Stamp Shoes

Stamp Dies



Stamp Cam

The Pelton Water Wheel

Affords the Most Economical and Reliable Power for Mining,
Electric and all other purposes.

9000 WHEELS NOW RUNNING

PELTON WATER WHEEL CO., 121 Main St., San Francisco, Cal.

Mexican, American and Foreign Patents,
TRADEMARKS, ETC.

Reports on Mining and Other Properties.
Proprietors of Weekly Anglo-American, a first-class Advertising Medium.
Established 9 Years.

C. H. M. y Agramonte,

P. O. Box 388. Cable Address, "Agra"

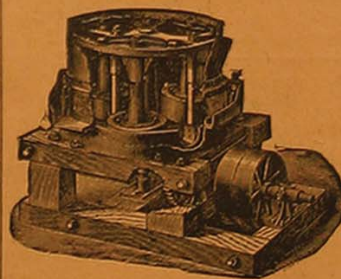
CITY OF MEXICO, MEXICO

PARKE & LACY COMPANY

21 and 23 FREMONT STREET, SAN FRANCISCO, CAL.

LICENSEE FOR THE MANUFACTURE AND SALE OF

The Huntington Centrifugal Roller Quartz Mill



THE HUNTINGTON MILL is so well and favorably known among mining men throughout the world that any description of it would seem superfluous. They are in use in the United States, Canada, Mexico, Central and South America, Australia, China, Japan, and South Africa. In fact, wherever mines exist, and have given the best satisfaction of all quartz crushing mills.

The construction of this mill has lately been much improved and we claim it to be the CHEAPEST, MOST EFFICIENT, SIMPLEST, AND MOST DURABLE MILL UPON THE MARKET.

— CATALOGUE UPON APPLICATION —

Refractory Ores

Successfully treated by the
PORTER ELECTRICAL PROCESS



The Porter Gold and Silver
Extraction Company

505 BULLARD BLOCK.

LOS ANGELES, CAL.

OTTO HECKELMANN

FERDINAND McCANN

ASSAYERS AND CHEMISTS

Heckelmann & McCann + Bullion Dealers

Cash paid for all kinds of Gold, Silver and Ores. All assays
and Chemical Analysis at Mexican Silver Rates, 50
per cent. Less than American Price.

PUENTE DE SAN FRANCISCO, No. 6

CITY OF MEXICO

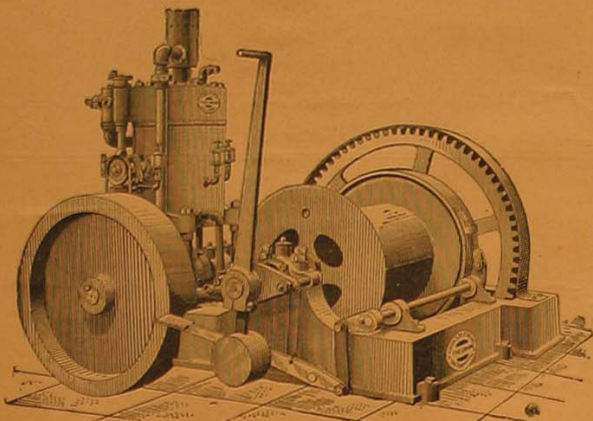
California Vigorit Powder Co.

Manufacturers of

Dynamite High Explosives and "Vigorit Low" Blasting Powder

OFFICE: 208 California Street,
San Francisco, Cal.WORKS: Point Isabel,
Contra Costa Co. Cal.

"Union" Hoist



Union Gas or Oil Engine and Hoist Combined, on strong, iron base.

No Fire No Steam No Boiler No Danger

TEN YEARS' EXPERIENCE. TWO THOUSAND ENGINES IN USE.

Started instantly. Compact, strong, simple, efficient, economical. Perfectly governed, so that oil is used only in proportion to the work done. No expense when idle.

Particularly Adapted to Mining in Localities Where
Fuel and Water are Expensive.Built in the following sizes:—1 H.P., 4 H.P., 6 H.P., 8 H.P., 10 H.P., 15 H.P.,
20 H.P., 30 H.P., 40 H.P.

Send for Catalogue and state what H. P. required.

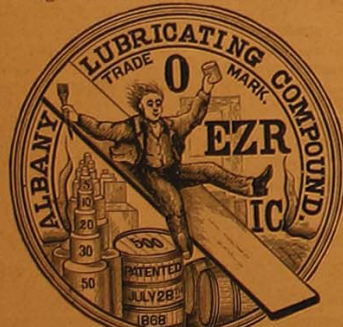
Union Gas Engine Co.,

301 Howard Street. San Francisco, Cal.

YUKON BOATS AND SLEDS

Stern Wheel Boats, 25 ft. to 200 ft. in length. Light draught.
Shipped—knocked down—and set up ready to run. Send for circulars and prices.

SAN FRANCISCO LAUNCH CO. Cor. of North Point and Stockton Sts. San Francisco, Cal.

The only Genuine ALBANY GREASE
has this TRADE MARK on every package. Look out for Yellow Label.

MANUFACTURERS OF

Albany Dynamo & Albany Cylinder Oils

If you are not using these Oils give them a trial at once, and we know the result. You will want no other.

ALBANY GREASE

Lubricates Everything

Especially Adapted to Mining and Milling Machinery.

—MADE ONLY BY—

ADAM COOK'S SONS,

313 WEST ST., NEW YORK.

BRANCHES:

TATUM & BOWEN,

34 Fremont Street, San Francisco, Cal.

42-49 First St., Portland, Oregon.

55 So. Canal Street, Chicago, Illinois.

FRANCIS SMITH & CO.,

—MANUFACTURERS OF—



MINING PIPE ALL SIZES

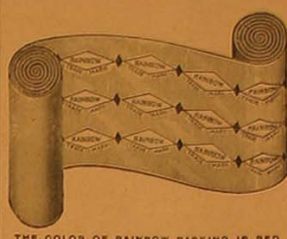
Hydraulic, Irrigation and Power Plants, Well Pipe, Etc., all Sizes.

Iron cut, punched and formed, or making pipe on ground where required. All kinds of Tools supplied for making Pipe. Estimates given when required. Are prepared for coating all sizes of Pipes with Asphaltum.

130 Beale Street

San Francisco, Cal.

RAINBOW PACKING

THOUSANDS OF
IMITATORS.
NO EQUAL.
WILL HOLD
HIGHEST PRESSUREDon't have to use
Wire and Cloth to
hold RAINBOW.
Can't blow it out.

THE COLOR OF RAINBOW PACKING IS RED

Three rows of Dia-
monds in Black
throughout the
length of each
and every roll.No baking or
following up.

PATENTED AND MANUFACTURED EXCLUSIVELY BY

PEERLESS RUBBER MFG. CO.,
16 WARREN ST., NEW YORK
16-24 Woodward Avenue, Detroit, Mich.
Dunham, Carrigan & Hayden Co., San Francisco, Cal.

202-210 S. Water Street, Chicago, Ill.



—FOR—

HYDRAULIC, PLACER AND QUARTZ MINING

Riveted up complete or Cut and Punched to be
Riveted at the mine.Well Pipe, Galvanized Air Pipe, Wrought and Cast Iron Pipe. Iron
Tanks of all kinds. Water Supply Material. General
Sheet Iron Works.

Correspondence Invited

Send for prices

THOMSON & BOYLE CO.

306-318 Requesena St.,

Los Angeles, Cal.

WILLIAM H. EMANUEL,

REPRESENTING

RAND DRILL COMPANY,
THE EDW. P. ALLIS CO.,Air Drills and Compressors
General Mining, Milling and Smelting
Machinery and Reynolds Corliss Engine
Wire Rope and Bleichert Tramways
TRENTON IRON CO.,
HENRY R. WORTHINGTON, General Service and Mining Pumps
ROBIN'S BELT CONVEYOR

DENVER

COLORADO

RICHARD L. COLBURN,

Stock and
Mining BrokerMember of
Salt Lake Stock and
Mining ExchangeSALT LAKE CITY,
UTAH.

JUST PUBLISHED

SECOND EDITION, REVISED AND MUCH
ENLARGED.

Gas, Gasoline and Oil Engines

BY GARDNER D. HIBOOK, M. E.

The only American book on the subject. 324
pages, 8vo, illustrated with 270 handsome engravings.
Price \$2.50. Full of general information
about the new and popular motive power, its
economy and ease of management. Also chapters
on Horseless Vehicles, Electric Lighting,
Marine Propulsion, etc.Special circular and catalogue on
request. Address
NORMAN W. HENLEY & CO.

132 Nassau Street, New York

TRIPP METALLIC PACKING

FOR
PISTON RODSMining Trade
Solicited
WM. B. MERRILL & CO.,

SOLE MANUFACTURERS

Office and Factory, 295 Congress Street
BOSTON, MASSACHUSETTS

PATENTS!

TOWNSEND BROTHERS
SOLICITORS
OF PATENTSPatents on Inventions secured in all countries.
Copyrights, Trade Marks and Labels.Office, 9, Downey Block,
Telephone 347. Los Angeles, Cal.

WOODBURY CONCENTRATOR



No. 141 First St., - San Francisco

McDearmon & Co.

Asbestos Boiler & Steam Pipe Coverings

Asbestos Cement for Boilers, drums, Heaters,
Etc. Special facilities for supplying
the mining trade.Pacific Coast Agent for H. W. John's Co's Asbestos
Sectional Coverings.

422 Sacramento Street, San Francisco, Cal.

MACHINERY

STAMP MILLS, Marine and Stationary
ENGINES and BOILERS, Saw Mills and all
kinds of new and second hand machinery.

Send for Catalogue

WASHINGTON MACHINERY DEPOT
TACOMA, WASHINGTON

J. W. Paxson Co.

FOUNDRY

Facings, Supplies, Equipments

COMPLETE OUTFITS

* Philadelphia, Pennsylvania

ALPHABETICAL INDEX TO ADVERTISERS

[illegible]

Crude Platinum Purchased.

To Identify Crude Platinum when found, send 75c for Sample in glass, packed in a strong box. We purchase or refine anything containing Platinum.

BAKER & COMPANY,

NEW YORK OFFICE: 121 Liberty Street.

NEWARK, NEW JERSEY

John Wigmore and Sons Co.,

GENERAL MINING SUPPLIES

HEAVY HARDWARE IRON AND STEEL

AGENTS FOR

John A. Roebling's Sons Company's

—✱— WIRE CABLES

Giant Powder

117 to 123 S. Los Angeles St.,

LOS ANGELES, CALIFORNIA

DICKMAN & MACKENZIE

MINING ENGINEERS,
ASSAYERS AND CHEMISTS

1224 Rookery Bldg, Chicago Box 77, El Paso, Texas

Orders by mail or express promptly attended to. Mining properties examined.

F. M. JEFFERY.

MINING LAWYER

212 Wilcox Bldg., Los Angeles, Cal.

Five years in Cripple Creek, Colo.



Weber Gasoline Mine and Mill Pumps

ALL SIZES.

FOR ALL DUTIES.

**Economy and Efficiency
Guaranteed**

Address, stating capacity

ty and conditions.

WEBER GAS &
GASOLINE E

434 S. W. Beuley



Kansas City, Mo.



CHAS. C. MOORE & CO.

ENGINEERS AND DEALERS IN

BABCOCK & WILCOX BOILERS, GREEN'S ECONOMIZERS,
McINTOSH & SEYMOUR ENGINES, WHEELER CONDENSERS,
HAMILTON CORLISS ENGINES, BARNARD-WHEELER COOLING TOWERS,
N. Y. SAFETY AUTOMATIC ENGINES, HOPPE'S LIVE STEAM PURIFIERS,
GOUBERT FEED WATER HEATERS, EDMISTON FEED WATER FILTERS,
STRATTON STEAM SEPARATORS, BUNDY STEAM TRAPS,
SNOW STEAM PUMPS, SPENCER DAMPER REGULATORS,
QUIMBY SCREW PUMPS, HYATT ROLLER BEARINGS.

Watch this Space for description of the above Machinery.

Send for Catalogue and Full Information.

19 First Street, San Francisco, Cal.

GOODYEAR Rubber Company.
Miners and Mining
GATHERING RUBBER, Crack Proof Boots, White Rubber Coats, Oil Clothing
BELTING, PACKING AND HOSE

573, 575, 579 Market Street,
SAN FRANCISCO, CAL.

73 and 75 First St.
PORTLAND, OREGON

**Diamond - Pointed
Core Drills**
AMERICAN
DIAMOND ROCK DRILL CO.
120 Liberty St., New York.
P. O. Box 1442.

**COMPLETE
MINERAL CATALOGUE**
126 pages with 40 engravings; contains
table giving name, composition and form
of all known minerals with other valuable
lists and tables. The best book of the kind
ever published, for students, prospectors,
mining experts, chemists and others.
Prices post paid, paper 25c, cloth 50c; call
\$1.00. SPECIMENS PURCHASED of Ores or
fine crystallization. Correspondence in-
vited. PRICE LIST FREE.

Dr. E. A. Foote, 1317 Arch St. Philadelphia, Pa.
Established 1876

JENA Trade Mark **BEST GLASS**
Normal Glass **SCHOTT & GEN. CO. JENA** FOR Laboratory use

CHEMICALS AND
CHEMICAL APPARATUS

ASSAY BALANCES
Finest Ever Made

Specialties:—Analytical Portable Bal-
ances, Porcelainware, Platinum goods,
Crucibles, Cupels, Scorifiers, Muffles, Fur-
naces, C. P. Acids, etc.

Everything Necessary for Assayers

Elmer & Amend,
3d Ave. Cor of 18th St. New York

Advertise in The Journal

J. HOWARD WILSON
Assayer and Chemist
A Specialty Made of Umpire Work.
306 Santa Fe Ave., Pueblo, Colo.

Metallurgy of Gold
A PRACTICAL TREATISE ON
The Metallurgical Treatment of Gold-Bearing Ores
INCLUDING THE
Process of Concentration and Chlorination, and
the Assaying, Melting, and Refining
of Gold.

BY M. BEISSLER,
Fourth Edition, Revised and Enlarged to 700
pages, with 25 Additional Plates, and Working
Drawings and Chapters on Recent Milling Op-
erations in the Transvaal. 8vo., Cloth, Price \$5.00.

D. VAN NOSTRAND CO.
PUBLISHERS
23 Murray and 27 Warren Sts., New York
Copies sent by mail on receipt of Price.

CONSOLIDATED PIPE COMPANY,
IRON AND STEEL WATER PIPE A SPECIALTY

873-889 STEPHENSON AVENUE, LOS ANGELES, CAL.

A. C. HARPER, Proprietor.
Telephone Main 420 Post Office Box 867

COLORADO and CALIFORNIA Mineral Developing Co.
433-4-5 STIMSON BLOCK, LOS ANGELES, CAL.

Prospecting, Developing of Mines, Mine Operators, Locat-
ing, Buying and Selling of Mines a Specialty, Finan-
cial Agents for Eastern Capitalists.

GAIL BORDEN, President
J. A. COMER, Vice-President
J. K. HAWK, Secretary

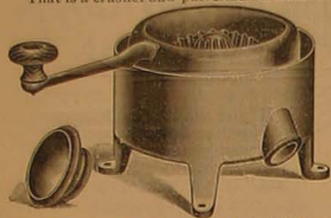
CAPITAL STOCK, \$200,000
Correspondence Solicited

ELECTRICAL FUZES

BLASTING MACHINES
LEADING WIRE
CONNECTING WIRE

THE AETNA POWDER CO.
188 MADISON STREET
CHICAGO - ILL.

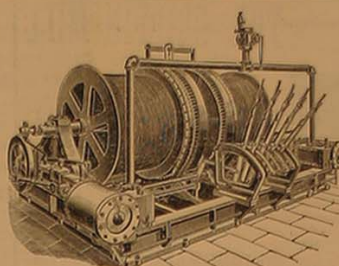
Send for our illustrated pamphlet

A NEW MORTAR
That is a crusher and pulverizer combined.

Weight 110 lbs.; Diameter 10½ in.; Height 8½ in.
Fills a long-felt want. Send for descriptive circular. Crusher Pulverizer No. 1, \$25.00.
J. E. Surman & Co., 74 Cortlandt St., New York

Lidgerwood Hoisting Engines

Built to gauge on the Duplicate Part System. Quick Delivery Assured.



HENSHAW, BULKLEY & CO., Agents, San Francisco, New York

Mine Hoists, CABLEWAYS

Conveying Devices, for Mining, Quarrying, Logging, Dam Construction, &c.

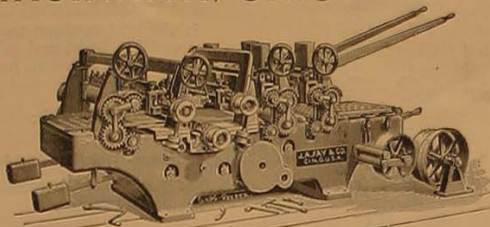
Electric Hoists and Appliances

Lidgerwood Mfg. Co.

New York

J. A. FAY & EGAN CO
CINCINNATI, OHIO**Wood Working Machinery**

— FOR —



Box Factories, Planing Mills, Sash, Door & Blind Factories, Carriage, Wagon and Agricultural Shops.

HENSHAW, BULKLEY & CO., Agents, San Francisco, Cal

THE NATIONAL IRON WORKS

Riveted Boilers, Tanks, and Sheet Steel or Iron Work of every description.

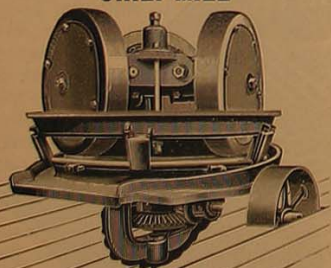
MANUFACTURER OF THE

National Steel Ore Car

Repairing of All kinds Promptly Attended to. PORTLAND, OREGON

The F. M. Davis Iron Works Co.

Office and Works 723 to 743
LARIMER STREET,
Corner 8th Street, DENVER, COL.

THE DAVIS IMPROVED CHILI MILL

SIMPLE, DURABLE, EFFICIENT

Five-foot Mill, \$1,500.00
Weight, 24,000 lbs.

SEND FOR CATALOGUES AND DISCOUNTS

OUR New Book**ESSAYS UPON**

Boiler Incrustation and Corrosion.
Boiler Explosions, The History of
Natural Water Contamination.

BY GEO. W. LORD, is now ready

We will send this interesting little book free of cost to

EVERY SUPERINTENDENT OR ENGINEER

Who will state his occupation. By whom employed. Total Boiler capacity. What Scale preventive he is using. The cost of the article. And how long the supply will last. Address

Geo. W. Lord, Philadelphia Pa.

J. B. TOMLINSON, M. E.

Prescott, Arizona,

MINING PROPERTIES EXAMINED, APPRAISED AND REPORTED UPON

— AND —
Supervision taken of the development of prospects and the operation of mines.

ORE TESTING

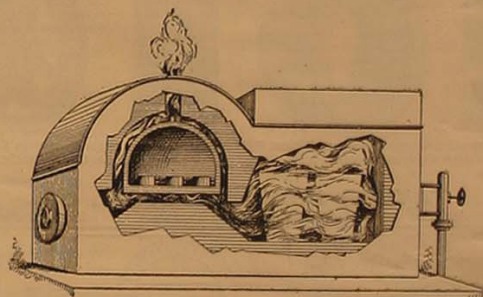
Complete mill for testing ores on practical scale by all processes to determine the best process adapted to treating any ore submitted. Processes in use investigated to overcome unnecessary losses, etc.

RICKETTS & BANKS,

Metallurgists & Chemists

No. 104 JOHN STREET,

NEW YORK CITY

LONERGAN & CALKINS' Combined Melting and Muffle Furnace.

Both furnaces always hot and ready for use. One burner suffices. A saving of one-half in fuel used. Compact and convenient to transport to and from mines and on prospecting trips. Furnace revolves on a pivot. After making one melt with burner inserted in melting end reverse furnace, insert burner in muffle end and you are prepared to continually melt and cupel without further disturbing furnace. A special feature of this is the oxidizing bonnet (not shown in illustration) by which a continuous flow of fresh air, controlled by a damper, is passed through the muffle.

LONERGAN & CALKINS,

Gold and Silver Refiners, Assayers and Bullion Buyers.

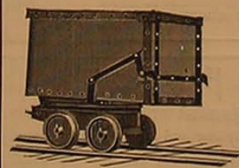
127 West First Street,

LOS ANGELES, CAL.

THE TRUAX PATENT IMPROVED**AUTOMATIC ORE CARS**

Manufactured by
CHAS. B. BOOTHE & CO.

126-128
SOUTH LOS ANGELES ST.
LOS ANGELES, CAL.



Pat. Jan. 2, 1892, Pat. Aug. 27, 1895.

Send for our Catalogue and Prices

Bullock's Diamond Prospecting Core Drills

These are the only Machines which will give absolutely accurate records of borings. Fifteen styles and sizes. Operated by hand, horse, steam, air or electricity.

Monarch Rock Drills

Any style of mounting. Simple, compact, economical. Operated by air or steam. Hoisting and Haulage Machinery to fill any requirements.

M. C. BULLOCK MFG. CO.,

1178 West Lake Street,

CHICAGO, ILLINOIS

*** SCHOOL OF ***

Practical Mining, Civil, Mechanical, Electrical Engineering, Metallurgy, Cyanide Process, &c.
Surveying, Architecture, Drawing and Assaying.
933 MARKET ST. SAN FRANCISCO, CAL.
OPEN ALL YEAR
A. VAN DER NAILLEN, President.
Assaying of Ores, \$25; Bullion and Chlorination Assay, \$25; Blowpipe Assay \$10. Full Course of Assaying, \$50. Established 1864.
Send for Circular.

PETER HEER,

232-234 E. Washington St., CHICAGO
Manufacturers of Highest Class

Engineering and Mining Instruments,

T-Squares, Triangles, Scales, Etc. Repairs carefully and promptly executed. Drafting Supplies of all kinds. Catalogue on application.

S. S. MACHINERY CO.

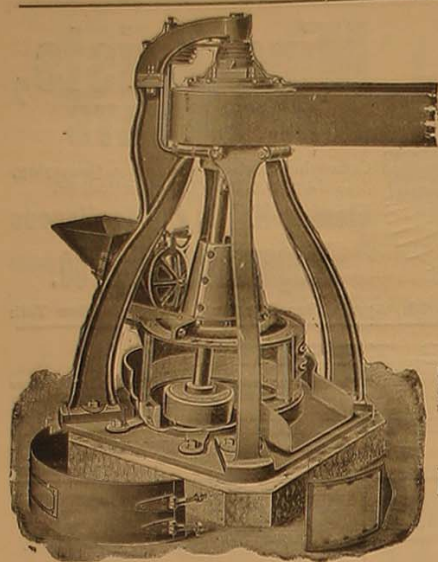
Buy, Sell and Trade in All Kinds of SECOND-HAND Mining and Wood Working Machinery.

CORRESPONDENCE SOLICITED.

OFFICE: 1529 Lawrence
WORKS: Sixth and Market

DENVER, COLORADO

TELEPHONE 120
Works, 1234



THE GRIFFIN MILL

The only Perfect Pulverizer Working both Wet or Dry Process

NO JOURNALS IN PULVERIZING CHAMBER.

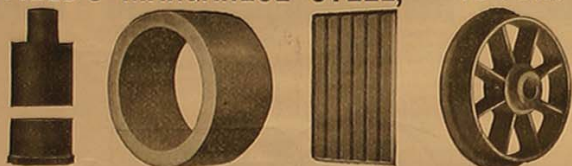
Delivers a finished product. Will pulverize 1 to 2 tons per hour on Portland Cement, Quartz or ores depending on hardness of material and firmness of product.

— Manufactured and Sold by —

Bradley Pulverizer Co.,

92 STATE STREET,
Boston, Mass.

HADFIELD'S MANGANESE STEEL, HARD, TOUGH.



Best Metal known for Stamp Shoes and Dies, Roll Shells, Crusher Plates and Side Liners. Toggles and Toggle Bearings, Gyrotory Cones and Concaves or Liners, Mine Car Wheels, Coal Crushing Rolls, Etc., Etc.

TAYLOR IRON AND STEEL CO.,

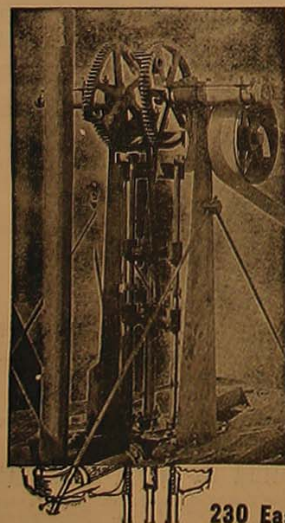
Sole Licensees in America under Hadfield System and Patents.

High Bridge, N. J., U. S. A.

KEUFFEL & ESSER CO.
NEW YORK.
127 FULTON AND 42 ANN STS.
Branches: 111 Madison St., Chicago; 708 Locust Street, St. Louis, Missouri
Drawing Materials and Surveying Instruments
largest and best assorted stock in America. All requisites for field, mine, and draughting room. We have made a study of this line, and our goods are warranted to be as nearly perfect as it is possible to make them. Prices reasonable. Write for catalogue.

Agent FULTON POWER PUMPS

With Capacities up to 30,000 gallons per hour.
Made by A. T. Ames, of Galt, Cal.



Fred. F. Hunt, E. M.

Chemist and Assayer

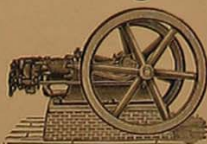
Weighing, Sampling and Assaying all Mineral Products
Specialties: Lead, Bullion and Umpire Assays
Samples by Mail or Express.

77 Pine Street, New York City

LAMBERT

Gas, Gasoline and
Distillate Engines

TANKS, PIPE
and WATER
SUPPLY
GOODS



Call on or Address,

S. J. SMITH,

230 East Fourth Street,

LOS ANGELES, CAL.

Preach at 'Em!



If you want the Miners of North and South America to know you are on earth, you've got to "Preach at 'em."

The Mining and
Metallurgical Journal

is the best medium to use—do all your preaching in it, and miners all over the world will listen to you.

OFFICES:

Stimson Block, Los Angeles and
64 Merchants' Exchange,
San Francisco, Cal.



KEYSTONE LUBRICATING GREASE

The only grease adapted to all temperatures. It will not splash or drip like oil.



Our goods are not for sale by the Jobbing trade. If you want the genuine Keystone Grease it can only be obtained from us.

A full set of brass cups furnished FREE on first purchase

Especially adapted for Air Compressors and all kinds of Machinery in connection with Mines, Mills and Smelters. Send for trial sample and Cup Free of Charge.

Keystone Lubricating Co. 20th & Allegheny Ave.
Philadelphia, Pa.



The Harrington & King Perforating Co.

127 N. Union St., Chicago Ill.

Eastern Office, 284 Pearl St., New York.

than there were states, not only in the form and character of the notes, but in the requirements relating to the security.

The older inhabitants of this country remember too well the disadvantages of the old system to be favorable to it. Under it losses to bill-holders were in various ways, and to a very damaging extent. The public generally had no knowledge of the solvency of the banks, and no man wanted to risk keeping any amount of money in his pocket. Counterfeiting would not be resorted to probably as much as then, but the status of banks would again require the existence of bank note reporters, in order to give information as to the solvency of the vast number of banking institutions that would be established. The notes of weak banks would go to discount, and, judging from experience, they would put their notes out as distant from home as possible.

The States cannot make anything but gold and silver coin a legal tender, and it would be presuming too much to suppose that the general government would make notes whose security was assets merely a legal tender. Notwithstanding the national bank notes are secured by bonds, and indorsed by the general government, and are ultimately redeemable with gold, they have never been made legal tender. It does not seem that the committee's bill can ever become law, even in a modified form.

There is a repugnance in the minds of a very large class of the American people to conferring the power upon corporations or individuals to supply the country with paper circulation, even under the most rigid restrictions and upon giving the most undoubted security, for the reason that there is selfishness in all human natures, and, consequently, it is dangerous to commit to interested parties the power to regulate the volume of money, to expand or contract as their interests may dictate.

Issuing notes is not legitimate banking, for it comprises simply the business of receiving deposits, loaning money, and selling exchange. Regulation of the volume of the circulating medium, in the opinion of the masses, should be solely exercised by the government which is the general agent of the people, and under the direct control of the people.

Until the war, and the problems evolved from it, are out of the way, it is not probable that any definite action will be taken on the money question. In the meantime, it is a subject that should be given thought, that when the time comes for action, revision may be intelligently made and as promptly as possible.

Agitation of economic questions, whether financial, industrial or commercial, tends to create uncertainty, and, consequently, disturbs business and restrains enterprise. Nothing has this effect more than an unsatisfactory money system.

The bill introduced by the Banking and Currency Committee, if enacted, would produce a want of confidence from the fact that the security of the assets merely would be deemed inadequate, and the people would accept the notes of the banks organized under such an act with the greatest reluctance. Any system in which the people have faith in the safety of the notes would be better than the one the committee proposes.

There were about 5,700 mining companies incorporated in Colorado from January 1st, 1893, to December 31st, 1897 inclusive.

Graphite as a Lubricant.

The development of high speed and great power machinery of the day has made the question of successful lubrication more serious than ever before. The compound engines, the great motors, the heavy shaft lines and gears, now so common in the large power plants and mills, present many new questions of friction and lubrication.

With superheated steam and high pressure there is difficulty in properly lubricating steam cylinders and valves.

Under these conditions, pure flake Graphite has solved so very many of the problems that it would seem to be the key to solve many others. A prominent engineer once said, "The more solid the lubricant that can be used in any place, the better the lubrication"; and Dixon's Ticonderoga Graphite is a solid flake Graphite of marvelous smoothness, toughness and endurance. It greatly increases the life and lubricating value of any oil, tallow or grease to which it is added.

During the past few years the sale of this particular Graphite has more than doubled. It has been thoroughly tested on locomotive engines, with results surprisingly satisfactory to even the strongest advocates of Graphite lubrication.

It must be borne in mind at all times that the difference between a perfectly pure Graphite and one almost pure, but still totally unfit for lubricating, cannot be detected by either sight or touch; the buyer's only guarantee of purity is the name and reputation of a responsible manufacturer.

Two conditions of success, so far as Graphite in engine or general lubrication is concerned, are: the Graphite must be absolutely pure and free from grit, and the flake of uniform size.

Send to Joseph Dixon Crucible Co. of Jersey City, N. J., for their pamphlet on the subject, sixth edition revised.

Colorado Dividend Payers.

The following is a list of the principal dividend paying mines, the amount and total dividends paid, together with date of same:

Associated Gold M. Co., dividend No. 1; 1c. per share. Amount, \$12,500.

Anchoria-Leland, 1c. per share, monthly, payable on 15th; total dividends to date, \$144,000. Dividend No. 24, of \$6,000.

Argentum-Juniata, 3c. per share, monthly, last dividend November, 1895; total dividends paid, \$156,000; about \$160,000 in treasury.

Bangkok-Cora Bell, 1c. per share, irregular; total paid, \$107,510.

Big Six pays 1/2c. per share May 25, 1898. Total, \$15,000.

Commodore, \$120,000, first dividend, 10c. per share; paid July 1, 1898.

Elkton dividend 1 1/2c.; paid July 12; present dividend, \$18,750; total, \$555,710.

El Paso Gold, payable on the 10th. Last dividend paid December 10th, 1897. Total paid, \$11,893.

Enterprise paid one dividend of \$3,500.

Garfield-Grouse, 1c. per share, Feb., 1897. Total paid, \$24,000.

Gold Coin, dividend No. 8, 1c.; amount, \$10,000. Total, \$80,000. Paid June 25, 1898.

Golden Fleece, varying from 1c. to 3c. per share, payable monthly on 15th; total paid, \$569,179. Last dividend paid Feb. 15, 1897.

Gold and Globe Hill, \$3 per thousand shares, monthly; last dividend July, 1897; total paid, \$52,625.

Iowa (Silverton) dividends paid, \$90,000;

1/2c. per share. Last dividend, June 17, 1898.

Isabella, 1/2c. to 3c. per share, quarterly, payable on 25th; amount of last dividend, 1/2c. Total paid, \$270,000; \$100,286.47 in treasury July 1, 1897.

Lillie, sixth dividend, 1c. per share cash; paid July 1, 1898. Cash dividend, \$9,000; total, \$98,100.

Mahala, 2c. per share, monthly; total paid, \$650,000.

The Mahala Mining Company is rapidly getting its interior shaft into the large ore bodies, and will soon be in readiness for stopping the Maid of Erin and Wolfstone workings adjoining, and which are making an overflow of about 300 gallons per minute and is handled by the Robert Emmett pumps.

Marion Consolidated, paid royalties \$234,702.80 in less than two years.

Mt. Rosa has paid \$60,000 in dividends; has \$45,000 in treasury. Last dividend, January, 1898.

Modoc (Cripple Creek) dividend No. 3, 4c. per share on \$500,000 capitalization; amount paid, \$20,000; payable about the 15th. Total \$45,000.

Mollie Gibson, last dividend January, 1895; total paid, \$4,080,000; about \$90,000 in treasury.

Moon-Anchor, dividend No. 16, 2 1/2c.; paid May 2, 1898, \$15,000; total, \$171,000. Future payments will be quarterly.

Moose, 1c. per share. Last dividend paid Feb. 10th, 1896. Total, \$186,000.

Nugget, total dividend paid, \$15,000; last dividend, April, 1896.

Pharmacist paid \$84,000 in dividends; nothing for over three years.

Portland from 1c. to 3c. per share, monthly, payable on 15th. Total, \$1,537,080. Last dividend paid May 15, 1898. Dividend, \$45,000. Dividend No. 42.

Princess, 1/2c. per share, irregular; total paid, \$45,000, Feb., 1897.

Raven, second dividend, 1c. per share, payable March 1, 1898; amount paid, \$20,000.

Smuggler, of Aspin, fifty second dividend paid, \$10,000, July, 1898. Total paid, \$965,000.

Tom Boy, \$20,000 per month. Total paid, \$600,000.

Union, 1c. per share, monthly, payable on 15th; total paid, \$73,000 and a ten per cent. stock dividend. Last dividend, June 15, 1896.

Union Leasing (Leadville) 4c. per share, monthly; last dividend July, 1895. Total paid, \$340,000.

Victor, 10c. per share, monthly, payable June 1st; total paid, \$955,000, with \$51,525 in treasury.

Vindicator; a dividend of five cents per share will be declared and paid by the company this month. This will amount to something over \$50,000 in all; the amount of stock issued slightly exceeding 1,000,000 shares. The capitalization of the company is 1,500,000 shares, but nearly 500,000 yet remain in the treasury. When the dividend will have been paid, there will be in the neighborhood of \$40,000 also in the treasury. This will be the second quarterly dividend paid out to Vindicator stockholders, and will bring up the total disbursement to over \$75,000. The property is splendidly equipped, has very large bodies of high grade ore in sight, and is making a heavy output. The gross production last month was over \$52,000.

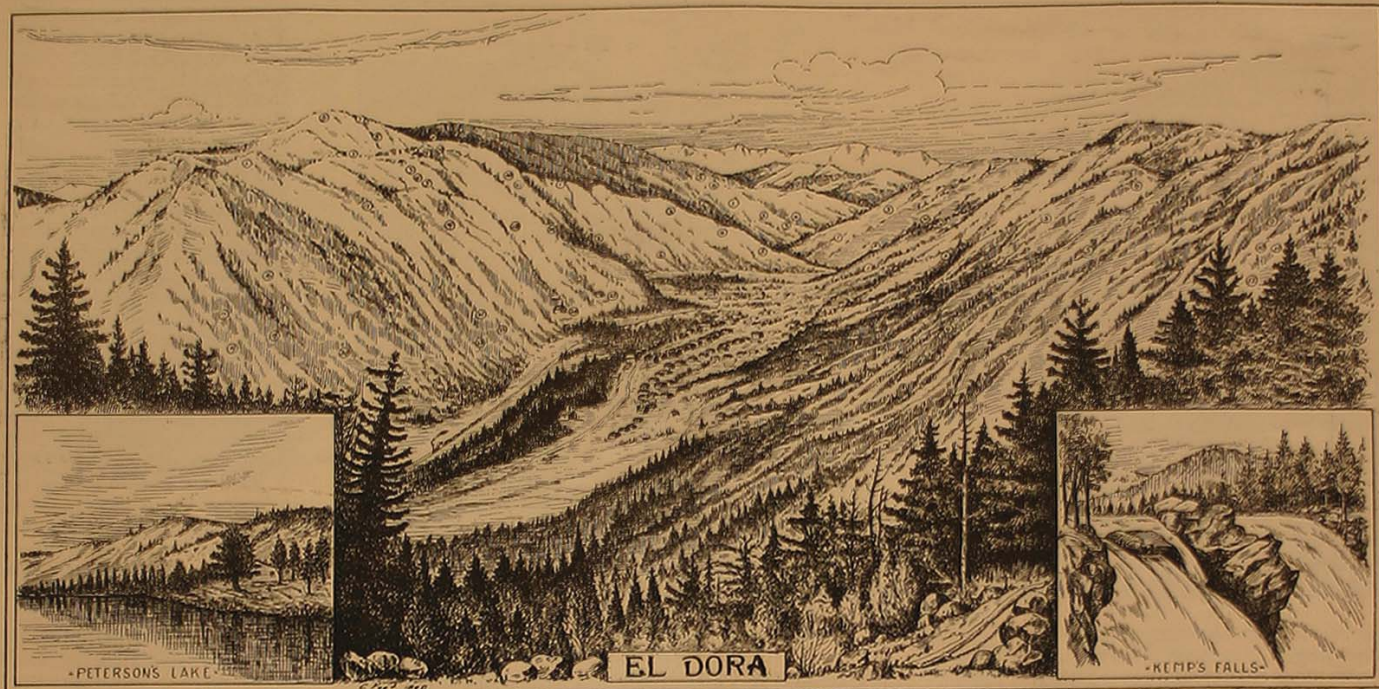
Eira mine at Tuscarora, Nev., is producing ore showing a gold value of \$600 per ton, with a ten foot vein of \$20 ore exposed on the upper levels.

Spencer Mountain.

Bryan Mountain.
Ute Mountain.Guinn Mountain.
Chittenden Mountain.

Mineral Mountain.

Eldora Mountain.



- SPENCER MOUNTAIN.—1.—Bonanza, 2.—Clara, 3.—Birdsnest, 4.—Delaware, 5.—Virginia, 6.—Gentle Annie, 7.—Jessie, 8.—Bobtail, 9.—Village Belle, 10.—Gold Coin, 11.—Enterprise, 12.—Little Charley, 13.—Memphis, 14.—St. Louis, 15.—Protection, 16.—Ida I., 17.—Mildred Belle, 18.—Lucky Star, 19.—April Fool, 20.—White Pine, 21.—Puzzler, 22.—Lady Allis, 23.—O. K., 24.—Mogul Tunnel, 25.—Populist Tunnel, 26.—Enterprise Extension, 27.—Black Beauty, 28.—Grover Cleveland, 29.—Uncle Sam.
- UTE MOUNTAIN.—1.—Happy Jack, 2.—Little Stranger, 3.—Village View, 4.—Pure Stuff, 5.—Fisher, 6.—Nancy Hanks, 7.—Somerset.
- BRYAN MOUNTAIN.—1.—Norway, 2.—Columbine, 3.—Great Eastern, 4.—X-Rays.
- GUINN MOUNTAIN.—1.—Reserve, 2.—Revenge.
- CHITTENDEN MOUNTAIN.—1.—The Denver Group.
- MINERAL MOUNTAIN.—1.—Helena W., 2.—Mineral Chief, 3.—Evening Star, 4.—Big 44.
- ELDORA MOUNTAIN.—1.—News Boy, 2.—Wilmington, 3.—Midway, 4.—Kaiser Wm., 5.—White Spar, 6.—Hill Top, 7.—Antietam, 8.—Independence, 9.—Tenderfoot, 10.—Lebanon, 11.—Rhoda Moore.

COLORADO THE GREAT.

The long continued success of the great gold mines of Colorado has done much to attract the attention of the investing capitalists toward that State and to establish confidence in the large low-grade gold-bearing veins and small high-grade tellurium veins found nearly all over the State. Cripple Creek, though only a few years old, has made a world-wide record by the production of over \$12,000,000 in gold in one year—1897. Cripple Creek mines are paying dividends at the rate of over \$2,000,000 per annum. Total dividends to date, \$5,000,000; total output about \$38,000,000. New discoveries in different parts of

the state have opened up new districts which, in turn, have attracted the attention of mining men all over the world.

Through the courtesy of Mr. E. G. Reinert, the manager of *Ores and Metals*, of Denver, we have been able to secure excellent illustrations and valuable matter for this description of Colorado's mineral resources.

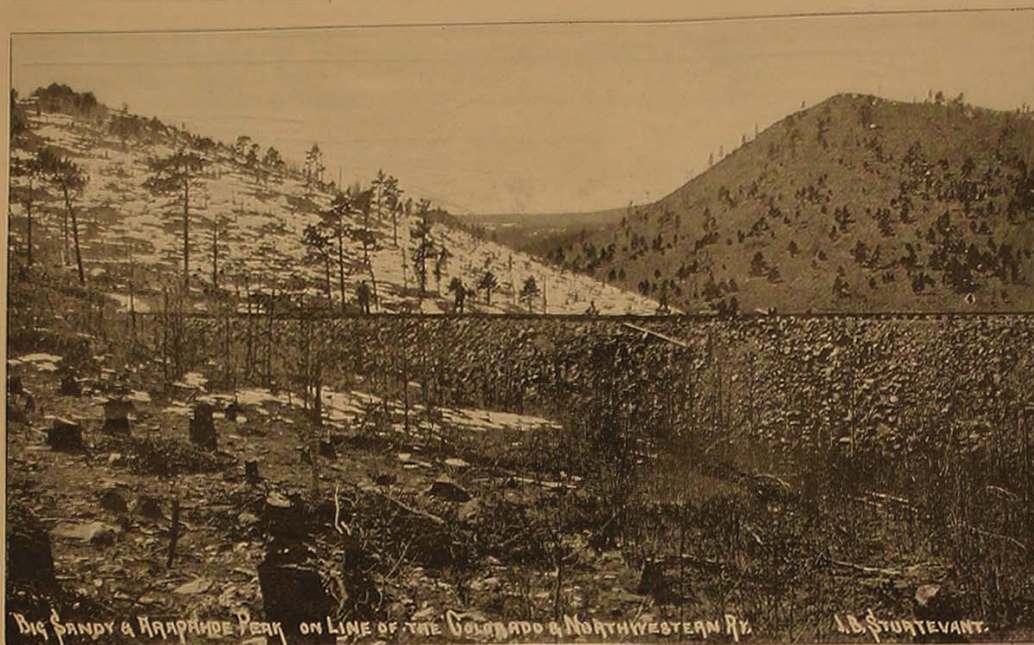
Ores and Metals is a monthly journal devoted to the mining, milling and smelting industry of the Rocky Mountains region, and contains complete information in condensed form of all mining operations of the state. It goes to all the large and small towns, mining camps and isolated mines in the state of Colo-

rado, where it is read by merchants, miners, manufacturers and capitalists of the highest standing.

GOLD HILL.

The earliest discoveries of gold in Colorado were made in the immediate vicinity of Gold Hill, one of Boulder county's richest camps, both in the form of placer and lode claims. Among the earliest producers was the old Horsfall mine, in which a surface shoot of free gold ore was struck that paid handsomely in the small, crude stamp mills of that date, whose percentage of saving was so low that the actual value of the raw ore before going into the mill must necessarily have been very





Big Sandy & Harpide Peak on line of the Colorado & Northwestern Ry. A.B. STURTEVANT.

large in order to leave any profit after the milling. Like most all of the ores in Boulder county, however, their free-milling qualities are lost with depth, and as the miners in those days knew nothing of any process of recovering values outside of the arrastra and stamp mill, they immediately deserted a mine as no good when the values ran into sulphides, which required smelting to recover.

CARIBOU DISTRICT.

Caribou district, the name now given to the region surrounding the town of that name in Boulder county, shows a remarkable awakening during the past three months. Caribou, Cardinal and Nederland are three towns within a distance of four miles, whose houses four months ago were practically empty; the surrounding country was deserted. Seldom was the sound of blast heard in the hills, and the roads were water-worn and grass-grown. Now the hundreds of houses and cabins, so long deserted, are all occupied. The sounds of blasts revibrate from hill to hill each hour, and life, animation and vigor have taken the place of the years of stagnation. The revival is all due to the discovery of gold. In the days long gone by, which the barnacles call "old days," Caribou was almost a synonymous name for silver. It was the scene of one of the great mining excitements, where no one thought of looking for gold, and the assayer seldom assayed for it.

In the search for gold, which revealed the mines and riches of El Dora, scarcely three miles distant, men began to look over the old mines and prospects of the Caribou region, and found the barren quartz to be very often gold-bearing, and rich enough to pay with the economical conditions now existing. This is the cause of the revival.

Few camps furnish a better ex-



SAN BLAS MILL, WARD, COLO.

ample of the typical mining camp history than Caribou. The first important vein found in the district was in the latter part of August, 1869, and was called the Caribou, which afterwards gave name and fame to the district. William Martin and George Lytle were the discoverers, though it is often erroneously credited to Samuel Conger. The latter, with Sam Mishler, Hugh McCammon and John Pickel, were all partners, the three latter having furnished the grub stake. About the same day the Caribou was staked, Conger discovered the the Poorman and traded his interests in the Caribou for the interests of his partners in the Poorman.

JAMESTOWN.

Jamestown is situated about twelve miles, as the crow flies, northwest of Boulder, at the junction of what are known as Big and Little Jim creeks. It has the honor of claiming at least two mines that have produced the richest gold ore in the history of the state. The first, the Golden Age, after a record of twenty years' production is still at work making an output of the wonderfully rich ore which has made the mine famous. In fact, it produces ore worth \$200 a pound, or 97 per cent. pure. The present manager, L. J. Talbott, says that the mine is yet but a prospect, though the main shaft is down almost 900 feet and there are probably a mile of underground workings.

The other big mine is the John Jay, which has probably produced among the richest tellurium ores yet found, has a history of much interest, but mismanagement has written the word "finis" to its usefulness as an ore producer. It still has plenty of ore, and would be a paying, producing property with the expenditure of some money under proper management.

GILPIN COUNTY.

It requires but a casual glance to





COLORADO AND PHILADELPHIA CHLORINATION PLANT, COLORADO CITY, COLO.

demonstrate the fact that the "old reliable" Gilpin county is still reliable. The old producers, which have given "The Little Kingdom" a world-wide prestige, are still producing and new producers are coming to the front rapidly. Facts are more potent than gilded phrases or choice rhetoric and more interesting to the average investor.

The month of March last the shipments from Black Hawk to Denver, Pueblo and other points aggregated 350 carloads of ore and concentrates. In tonnage the amount was 5,600 tons, the largest shipment ever recorded in one month, an increase over the same month of 1897 of 768 tons, and 2,664 tons over 1866.

It is claimed that there are more stamps in operation day and night in Gilpin county than in any other section of the state. The Iron City mill at Black Hawk was the first rapid-drop mill built in Gilpin county. It was constructed by Hendrie & Bolthoff of Denver, and is a model of the kind. The capacity of the mills running is, in round numbers, 510 stamps, distributed as follows: Hidden Treasure, slow drop, 75; Mead, slow-drop, 40; Polar Star, slow-drop, 40; Eagle, rapid drop, 35; Bob Tail, slow-drop, 75; Gilpin, slow-drop, 50; New York, slow-drop, 75; Randolph, slow-drop, 50; Penn, 35 slow and 10 fast; Iron City, fast-drop, 25. The whole number treat about 600 tons every 24 hours. The Rocky Mountain Concentrator is treating 75 tons per day, and the Pueblo Smelting and State Ore Works from 50 to 70, which brings the tonnage treated in Black Hawk to about 800 tons, which is certainly a very flattering showing.

CREEDE CAMP.

The following figures, giving accurately the shipments for the months of January, February, March, April, May and June, show what Creede Camp, Mineral county, has been doing:

SHIPMENTS.

	Cars.	Tons.
January.....	418	6,270
February.....	549	8,235
March.....	652	9,780
April.....	532	7,980
May.....	546	8,190
June.....	550	8,250

Total..... 3,247 48,705

This total of 3,247 car loads, or 48,705 tons, figured at the minimum, makes:

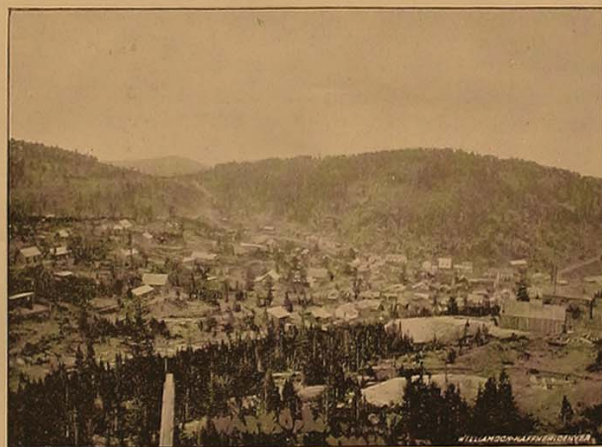
1,948,200 ounces silver at 57¢.....	\$1,110,474 00
4,870.5 ounces gold at \$20.....	97,410.00
7,305.75 tons lead at \$70.....	511,402.50

Total product for half year \$1,719,286.50

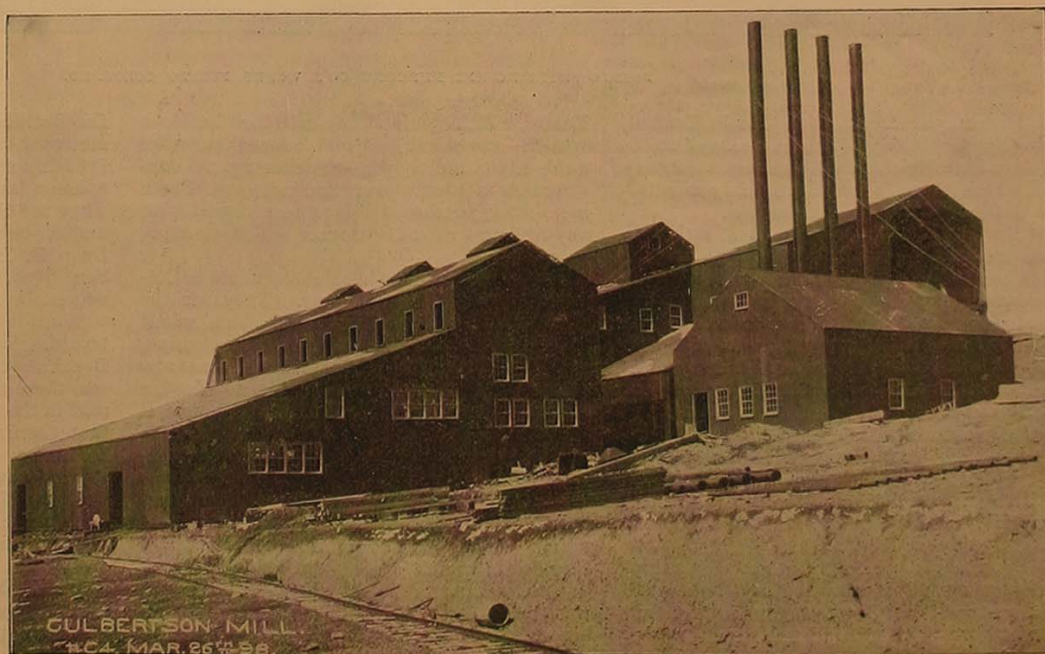
The total for the year 1897 was 72,352 tons, or \$2,585,736. If the shipments for the balance of the year are equal to the past half, there will be an increase during the present year of 25,058 in tonnage and \$852,857 in values.

AN EL DORA ETCHING.

El Dora, the Boulder county Cripple Creek, is the newest excitement in the mining world which promises to make a substantial addition to the mining development in Boulder county, says *Ores and Metals*. When a rush is started towards a given point people do not reason, they simply rush. The field around El Dora was prospected a quarter of a century ago, chiefly, however, for silver, being in close proximity to Caribou, which about that time was the greatest silver camp of Colorado, and which gave the state a somewhat unenviable notoriety on account of a three million dollar deal by which some of the mining promoters of that day unloaded a property called the Caribou upon a Holland syndicate for the sum named. It is hardly necessary to say that it was a question of but a short time before the Hollanders found that, being being strangers, they were beautifully taken in. It was, of course, no reflection whatever upon the character of the mining district, but simply an object lesson as to the methods



WARD, COLORADO.



pursued by men called "prominent" in those days, who were willing to barter their good name for riches.

The history of Caribou demonstrates conclusively that an immense silver belt exists, which, had it not been for the "crime of '73," would have yet been a great producing camp.

Almost parallel and lying below this silver belt, ranging from a point north of Ward to Breckenridge, Colorado, a distance of over 50 miles, lies what is known as the great sulphide belt, in which gold values greatly predominate and which have established the reputation of such rich producing sections as the counties of Clear Creek and Gilpin. The "Little Kingdom of Gilpin" is alone credited with an output in the past 40 years of over 75,000,000. The territory between Central and Ward, which has been, so far as actual production is concerned, almost a terra incognita, is now being brought to the front by the El Dora excitement. That the values in this sulphide belt are continuous for the distance already named seems conclusively proved by the development made at intervals. A line drawn through Ward down California gulch, over Puzzler mountain, through Sunnyside

shipping values. The condition of the roads, or rather lack of roads, on the mountain sides, coupled with the heavy fall of snow, has up to this time prevented any heavy shipments, but the owners of the property are so well satisfied with the showing from the mine that they are pushing development work and getting the property in shape so that by the time the weather has settled sufficiently to permit wagon transportation it will be in good shape for active production.

Spencer mountain, on which the Enterprise and Village Belle properties, and a great many others, are located, seems to be the principal point around which the greatest interest centers. It may, in fact, be considered a sort of mineral hub of El Dora, notwithstanding the fact that Bryan, Chittenden, Mineral, Ute, El Dora, and other hills in the vicinity are showing excellent values in individual cases and give promise of making great producers over a large area with intelligent development.

WARD AND ITS NEW RAILROAD.

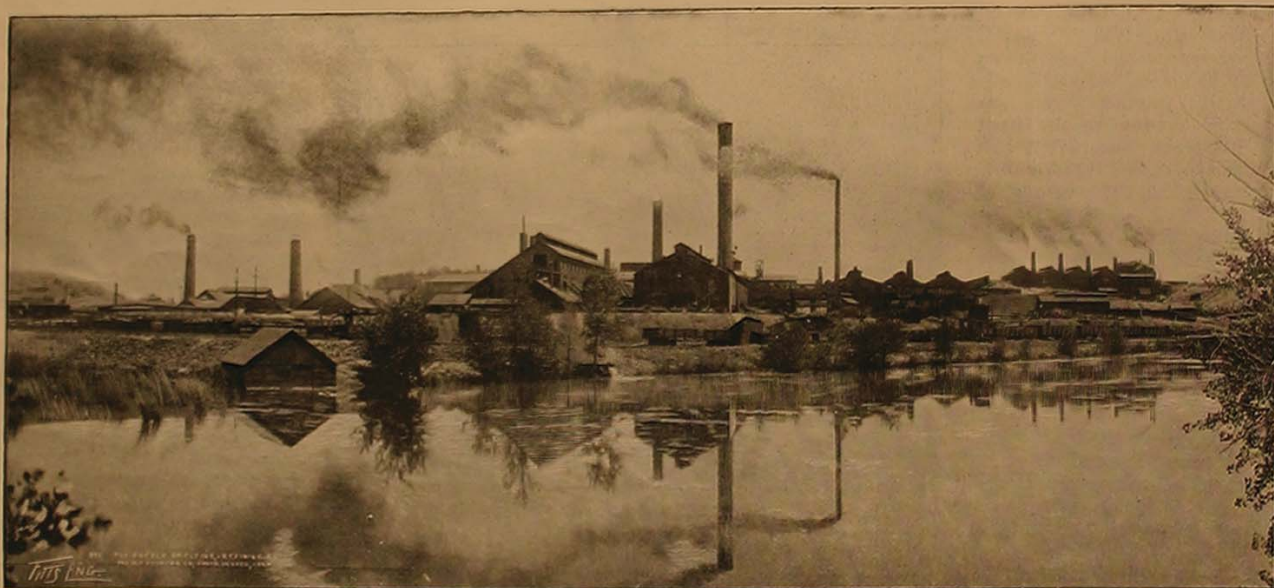
Despite panics and dull times and war and rumors of war, the portion of old Mother

ception and banquet, such as can only be given and enjoyed in a mining town.

From Boulder the road runs up Boulder creek to Four Mile, up the latter to Sunset, and from there winds about the mountain to the south side of Left Hand, up that to the head of California Gulch, and from there around a mountain into the old, historic town of Ward.

The Colorado & Northwestern Railway Co. was organized under the laws of Colorado, July 19, 1897, with capital stock of \$500,000, with authority to issue same amount of bonds. The incorporators are: E. C. Thompson, Meadville, Penn.; J. T. Blair, Greenville, Pa.; Charles W. Mackey, New York; M. F. Leech, Boulder, Colo., and Thomas S. Waltemeyer, Omaha, Nebraska. Through the courtesy of Mr. J. T. Blair we present herewith views of Ward, Sunset, Big Sandy Peak and others.

Ward is revolutionized, says the *Mining Reporter* of Denver. It is no longer the sleepy, rotting, dead town. It feels the stimulus of the greedy hunt for gold, and is roused into activity by the locomotive whistle. It has quadrupled in size in a year. It has good hotels, a school house, two churches,



PUEBLO SMELTING AND REFINING CO.'S WORKS, PUEBLO, COLORADO.

and Sunset, El Dora, Pine Creek, Central, Idaho Springs, Georgetown and extending to Breckenridge and Leadville, covers a territory than which there is no more richly mineralized in the entire state of Colorado.

El Dora is too new to make final estimates as to its value as a mining camp with Cripple Creek pretensions, but it seems to be a generally conceded fact that so far as development has already gone, the showing is fully equal to that of its famous neighbor at the same age. The long line of stages that daily meet the train at Boulder show that the people are determined to see for themselves upon what foundation this boom is built.

In a general way it may be said that there are no surface mines in the sulphide belt, yet the Enterprise and Village Belle, on Spencer mountain, have shown pay values at depths of from 50 to 100 feet.

While the Village Belle has not been a shipper, it has a pay streak ranging from two to twenty inches, carrying tellurium and sylvanite along with the sulphide, which makes

Earth which yields the metallic basis of wealth—the worshiped and adored trinity of gold, silver and copper—are causing the construction of towns, mills and railways. There is no other portion of this sphere blessed with any different natural resource which is doing as much.

Two railways have been constructed in Colorado during the past year. They are the electric road at Cripple Creek, which winds from mountain to mountain and mine to mine, and the Colorado & Northwestern narrow gauge which extends from Boulder to Ward, a distance of 26½ miles. In that distance it climbs up 4,100 feet above Boulder, and ends just below the eternal snow banks, at an altitude of 9,450 feet. Tuesday, June 28, was the formal opening of the railroad to passenger traffic and business. It was made an occasion of an excursion from Denver and Boulder in which some hundreds of invited guests took part. To all who were present it will be a day long to be pleasantly remembered. The people of Ward gave a royal re-

fine buildings and stores, and is putting on metropolitan airs with modern improvements. It has numberless prospects undergoing development, and nine regularly producing mines. They are the Sullivan and Utica, on the Columbia vein; the Ward Chief, Ruby, Dew Drop, B. & M., Newmarket, Wirth, Star and San Blas. About 300 men are earning wages.

Ward is one of the old camps with an interesting history. It was there that the first Bruckner cylinder ever built was erected. It was there that the first successful chlorination mill in the territory was run, and it was there that the first bumping table built was used. Its history is a history of success and failure, worth knowing for the lessons they teach.

Of the old-time prospectors and miners who were there in the early days, a generation ago, only five remain. They are Cy. Dear-doff, John Wirth, Israel Benson, Miles Jain and Mike Moony. It is worth while meeting the old boys once in a while, and recount the events of the old flush days when the gulch

was rich and the blossom ran thirty-five ounces to the cord, when youth made the hair brown and eyes bright, when sour dough and our roast venison was better than a Brown Palace dinner today. It is good to have a reception and get together for a good time, for the ranks are growing thinner, and the people in the little old fenced yard on the hill are increasing in number, and by and by there will be none left to go to the feast, and the chairs will be empty.

GOLD LAKE.

The noted "Hoosier" dyke, near Gold Lake is a massive quartz vein, running easterly and westerly, and was formerly supposed to be a line of division between ore deposits of different characters, but more recent development shows the same character of ores. West of Gold Lake are a number of fine prospects, showing large bodies of sulphides carrying copper. Among these may be mentioned the President group, belonging to the Wellington Company. Major Jain has also struck some good ore at 45 feet, south and west of this locality.

THE GREAT SAN BLAS TUNNEL

The San Blas mill is located at the point where this great quartz dike crosses Jim creek, near the mouth of the tunnel which opens the vein on the San Blas group. The latter shows a strong body of milling ore of low grade. This mill is about one and a half miles north of Ward, and two and a half above the John Jay mine.

It gives us pleasure to speak highly of so practical a company, capitalized at the modest sum of \$600,000, with a large portion of its stock in the treasury as Working Capital, and a new 10-stamp mill in full operation, without a dollar's indebtedness, and another mill soon to be added. Its property consists of nine claims and already eight mines (over 100 acres) in the heart of the great coming Ward district; the tunnel 900 feet into the Michigan Mountain with its innumerable veins, literally called a "Mountain of Ore," the Ann Arbor alone, being 57 feet wide, with 2,700 feet on the vein, averaging from \$4 to \$32 in gold per ton up to \$1,128.58, and a score more of veins yet to be tapped at the depth of 600 to 1,000 feet.

This tunnel is the key to many mines surrounding and lying in its track, which will gladly pay tribute for drainage and transportation of their ore to the coming railroad and many blind veins which will be cut and belong to the company. The present stamp mill is crushing 30 tons of ore per day and the company soon will be enabled to handle two or three times that quantity of its own ore, beside crushing upon a handsome royalty the ore of several adjoining mines.

To Dr. W. P. Gillingham, President and Treasurer, the stockholders may indeed be thankful for his early selection of these properties and their good management, as the whole enterprise cannot fail to pay them large dividends for many years to come. The other officers and directors are L. N. Putnam, Vice President; Maj. Miles Jain, General Manager; C. H. Gillingham, secretary; T. S. Deveau, director.

SUNSET.

The first prospects were located here twenty years ago, but, owing to inexperience in mining, and the high cost of treatment of ores at that time, the country has lain undeveloped until now, and has only existed as a name. Its geographical position—at the junction of Pennsylvania gulch with Four Mile creek and other smaller gulches—makes it a natural

distributing point; in addition to this fact, the mineral resources of the surrounding country are not inferior in extent and character to any camp in Boulder county. The lack of development is the prime factor that has heretofore prevented Sunset from becoming well-known as a producing camp. The formation is the same as the Sunnyside and Ward country—in fact, it is a part of the same. West of Sunset, half a mile, is located the "Dolly Varden," the best producing mine in the belt at this time, which is operated by the St. Anthony Mining Co., under the direction of E. A. Brandon as superintendent, under bond and lease. The mine had been worked years ago, and had a record at that time of producing nearly \$8,000.

THE PUEBLO SMELTING AND REFINING CO.

This company's plant is equipped with all the latest facilities for handling the immense variety of ores produced in the mountain regions of the United States, British Columbia and Mexico, and consequently is always a purchaser of all classes of ores.

The works were established July 1, 1878, and at present have a capacity of 1,000 tons of ore a day. The refining capacity is 350 tons of base bullion daily, yielding 300 tons refined pig lead, carrying 140,000 ounces of silver and 4,000 ounces of gold.

The railroad advantages offered at Pueblo have made it the smelting center of the state and the West. A half-day's visit to the works of this company amounts to a "liberal education in the reduction of ores, the extraction of precious metals and their refining for the markets of the world."

The management is at all times pleased to show visitors every attention and fully explain the methods employed.

COLORADO-PHILADELPHIA REDUCTION CO., COLORADO CITY.

This is one of the finest and most thoroughly modern chlorination plants in Colorado, which has not only been in successful operation since its establishment in March, 1896, but has expended \$60,000 in additions equalling fifty per cent. of its former capacity. The present capacity is 250 tons a day, producing from \$175,000 to \$225,000 a month in gold bullion. The ores handled, which are exclusively gold, are obtained chiefly from Cripple Creek. The present plan is the development and outgrowth of the works at Lawrence, which burned down a few years ago. Mr. C. M. MacNeill, vice president and general manager, was also manager of that plant.

THE CULBERTSON MILL.

The Culbertson mill, which is eastern terminal of the Colorado & Northwestern Ry., is a typical Colorado mill of great magnitude, located from three and one half to four miles from Boulder.

Colorado has been a school to many mill men, smelter-men and miners and it has been the birthplace of many of the most important improvements introduced into gold-milling practice and the gradual growth of the American mill, from the rough and clumsy machine of the early days to the magnificent and complete mechanism whose muffled thunder now echoes among the mining regions of Colorado.

Smelters are in better position to treat ores more economically today than they have ever been, which is due to their having made many improvements from a metallurgical as well as a mechanical stand point.

CORRESPONDENCE

MEXICO.

Guanajuato Mining News.

The United Mexican Mining Co, limited, of Guanajuato has been reorganized with sufficient capital to prosecute development work on a large scale. The mines belonging to this company have been worked since 1824, and their output of silver and gold-bearing ores runs into the millions. Information has just been received from the Refugio mine in the La Luz district, belonging to this company, that a large body of high-grade ore had been encountered. The shipments from this mine amounted to to \$7,000 worth of ore the past week.

Mr. Williams, the manager, and Mr. Bryant, secretary of the company, have gone to the City of Mexico on important business connected with the reorganization of the company. During the past year, under the administration of Mr. Williams, dividends to the amount of twenty thousand pounds have been paid to the English stockholders.

The Guanajuato Consolidated Mining and Milling Co., of which Mr. J. T. Judd is general manager, are erecting a 20-stamp mill, with accommodation for an additional 60 stamps. The Boss Continuous process, by which amalgamation is used for the free gold contents of the ores and concentration for the silver contents, has been adopted at these mines. Work on the mill is progressing favorably.

The Bolanitos mine in La Luz district, owned by Mr. Jesus Andrade of Mexico City, has just cut a vein in the sinking of their shaft, carrying ore that assays high in silver and gold.

One of the most extensive metallurgical propositions ever attempted in Guanajuato is that of the Guanajuato River Gold Recovery Co., of which Mr. T. C. Salveter is president and Mr. Geo. W. McElhiney, secretary and treasurer. The original concession of this company embraces an area of twenty miles of the river bed of Guanajuato, which concession has just been extended to include 15 miles of additional territory below Marfil.

The Guanajuato river has received the tailings of the many Haciendas of that famous mining camp, since the year 1540, and the immense amount of available sand carrying gold, silver and amalgam of these metals with mercury is practically incalculable and five million tons is a low estimate. The test and assays made on the crude material containing gold, silver and copper, have demonstrated these tailings to be of sufficient value to justify the construction of an immense plant to recover the precious metal contents. Samples taken from bedrock have assayed as high as \$140 per ton in gold. The question under consideration now is to ascertain and establish the best and most economical system of treatment to be adopted for the extraction of the precious metal contents and for this purpose a thorough sample of these deposits is to be taken at various intervals along the river bed and shipped to the testing plant of Hecklemann & McCann, in the City of Mexico, where a series of exhaustive experiments will be made by the various processes in use.

While all the smelters are not running to their fullest capacity at the present time, it is known that they are putting through a larger tonnage during this year than they have for some years past.

UTAH.

SALT LAKE CITY, July 15, '98.

EDITOR JOURNAL:—The Utah mining stock market was only moderately active this week. The hot weather and general disinclination of operators to trade were the causes that made up a quiet market.

Ajax continues in the even tenor of its way, with just a show of strength now and then. Alice, Alliance and Anchor succeeded in making quotations, but that was all. Bullion Beck's failure to close an ore contract was undoubtedly the cause of the sagging tendency of the stock; which is now quoted lower than for some months past. The dividend of 10 cents per share, or \$10,000 was paid yesterday. The total dividends paid to date amount to \$2,505,000.

No reports of an interesting character are coming in from the Centennial-Eureka and the situation remains unchanged, with the single exception that the stock is being offered at somewhat lower figures. There has been a cessation of rumors of dividend resumption. As predicted in my letter of last week, Chloride Point was pushed up rapidly on inside buying. The news relative to the operations at the new mill is of the most meager nature and very little if anything of importance will be given out until it is fully demonstrated that the mill will work the ore successfully.

Dalton has levied an assessment of one-half cent per share, payable on or before August 9th. There was a slight demand for Dalton & Lark, and the same may be noted of Daly. Daly-West was stationary.

Grand Central paid its second dividend of \$31,250 today, which carries the total to \$62,500. The mine's physical condition continues to improve. The stock stands steady around \$7 per share. Homestake has levied an assessment of one cent per share, payable August 13th. Little Pittsburg was steadily bid for around 2½ cents.

Mammoth was in demand but at unchanged quotations. Shipments from the mine continue regularly and there is nothing new to report. I expect the usual dividend to be declared this month. Mercur declared its usual dividend of 12½ cents per share, or \$15,000 on the 9th, payable on the 20th. It is stated that the mill increase to 350 tons per diem will be completed in about thirty days. With this increased tonnage, the net earnings should be between \$26,000 and \$28,000 monthly, against dividend payments of \$25,000. Under these conditions the stock is a purchase under \$7.50 per share, paying 20 per cent annually at that price. Northern Light's assessment was paid only to the extent of 150,000 shares, the balance are advertised as delinquent. I think it will be generally paid before the date of sale.

Omaha's legal difficulties have been satisfactorily adjusted and the property will be worked and the stock will probably advance.

Silver King's dividend of \$37,500, paid on the 11th, carried the total to \$1,612,500. Sacramento declared its regular dividend of ½ cent per share, or \$5,000, payable on the 30th. The stock was a trifle weaker and the offerings very free. Sunshine was stronger and in demand at higher quotations. Swansea was in demand, but weakened a trifle in the offerings. South Swansea was rapidly absorbed at lower figures. It is probable that this month's dividend will be passed.

A new stock is added to the list this week—the Young America, near the famous Dexter mine at Tuscarora, Nev.

Miscellaneous Mining News.

ALASKA.

A body of almost pure copper has been discovered in Alaska. The copper is located between the White and Copper rivers. A few months ago, an old prospector went to Robert Duncan, Jr., the superintendent of the Treadwell mines at Juneau, and showed him a piece of ore of apparently wonderful richness. It was sent to San Francisco, and on being assayed was found to contain 94 per cent copper, \$30 in gold to the ton and a small amount of silver. The statements of the old prospector who brought in the same of copper have been corroborated when he said that the ore is so pure that there is no need to smelt it in the north, but that it can be shipped to San Francisco and treated there at a good profit. This discovery is considered the most important that has been made in Alaska for a long time.

ARIZONA.

Lynx Creek Notes.

Comer & Sons sold a mine last week for \$15,000 to the Bradford company of Philadelphia. They received \$1,000 down and are to receive the remainder in time payments.

Ward Clark has sold the Old Shelton group of mines to A. G. Kennedy, general manager and agent for the Dave Denver company. The consideration was \$40,000.

Ex-Governor Tittle recently sold the old Tritle mine for \$5,000 cash.

Judge Griffin and W. R. Rowe each sold a mine recently. The former sold the Champion.

Besides the above mentioned mines, all of which intend putting a force of men to work, are the Pine Mountain and Hartsfield mines. The Pine Mountain is being worked by lessees, about 25 in number.

The Hartsfield is being worked by Mr. Milkins. This mine has recently been opened up and Mr. Milkins is simply sacking his money. He has been at Lynx creek for thirty years and is entitled to the comforts his money will bring him.—*Arizona Republican*.

CALIFORNIA.

AMADOR COUNTY.

Jackson Development and Exploration Company.

The management of the Jackson Exploration and Development Company has decided to sink 300 feet deeper before crosscutting the ledge. A station has been cut at the 1000-foot level and is ready for development work there, and the shaft was sunk below the 1000-foot while the station cutting was going on.—*Amador Ledger*.

Kennedy.

The last ten stamps of the Kennedy mine have been repaired, and now the forty stamps are again pounding away and in better condition to do effective work than they were when the mill was first constructed.

CALAVERAS COUNTY.

Spagnoli.

Dave Fisher has the shaft on this property, at Clinton, down about 100 feet, and is pushing it forward as rapidly as possible under the circumstances with which he has to contend.

The Gwin.

The Gwin mine is seriously contemplating a shut-down, on account of a shortage of water; in fact, the story here is that they will shut down at the end of this week. They get water from the Campo Seco ditch, in which water has been getting scarcer daily during the past month.

EL DORADO COUNTY.

Nashville Gold Mine Development Company.

The Nashville Gold Mine Development Company has been incorporated; principal place of business, Sutter Creek, Amador county; capital stock, \$1,150,000, with \$150,000 subscribed. Charles P. Eels of San Francisco, E. C. Voorheis and John Ross, Jr., of Sutter Creek, J. F. Parks of Jackson, Charles W. Howard, Jr., of Nashville, directors. The old Havillah mine, owned by the Hendy estate, has been bonded to the company and is to be prospected and operated by it. It is the intention of the company to extend the Crawford ditch to a point west of Nashville. By so doing they will have over 500 feet fall.

At the Grand Victory mine, near Placerville, 30 stamps are crushing 65 tons of ore per day. Two standard rock breakers, seven four-foot Frue vanners and three Triumph concentrators are at work. The mill is operated by an eight-foot impulse wheel, under a seven-foot head. The mill, mine and grounds are lighted by electricity. The shaft is now down 265 feet from the adit level, which is 150 feet in depth from the surface. Stopping is in progress in the 100 and 200 foot levels. The ore runs from \$2 to \$10.

INYO COUNTY.

The Inyo Mining Company, composed largely of Pomona business men, have recently commenced smelting, and are running through twenty-five tons of ore per day at the mine situated near Darwin.

KERN COUNTY.

The most important find in the Randsburg camp so far has been the new strike of sulphuret ore in the Little Butte, at a depth of 500 feet. The ore body shows a five foot vein of dark, close-grained, blueish looking quartz and mills about \$15 free gold with the sulphurets worth about \$88 per ton. More than any thing else, it shows the permanency of the ledges as for the pitch of the ore chute the same vein passes under the Kinyon and Wedge, only at a greater depth. The Little Butte people are feeling mighty good over their prospects and employees take renewed courage.—*Randsburg Miner*.

LOS ANGELES COUNTY.

Mr. R. E. Hudson, of the Tejunga mines, was in Action last week. He reports work on developing their mines progressing very good and if they had plenty of water they could pound out gold.

The new mill for the Puritan mine at Acton is nearly complete, and it will only be a few more days before it will be in running order. It is built near the Puritan mine, and promises to be quite an addition to the mining industry.

Some of the main shaft of the Red Rover has caved in, and a meeting of the company has been called to determine what improvements shall be made as soon as Senator White returns from Washington.

MONO COUNTY.

Now that outside capital has become interested in the old Jordan mines at Jordan, the property will be put in shape for producing wealth for Mono county. There will be some improvements made in the mill and a concentrator, now on the road, will be put in.

Superintendent Pierce is expected to arrive at Lundy in a few days and will take charge immediately of the cyanide plant erecting there. Fifteen men are employed and work is being rapidly pushed to completion. The tanks are already in place.

RIVERSIDE COUNTY.

It is expected that ten stamps will be dropping in the Dale district before the first of August. There is enough ore on the dumps now to keep the mills going night and day for six months.

SAN BERNARDINO COUNTY.

E. L. Matot, who is interested in the Verde Antique Marble Quarry, in San Bernardino County, was exhibiting some twenty samples, in San Bernardino, last week, of the product of this property. Each sample was of different shading or color, and carries a very high polish. They will accompany the bid that the Verde Antique Marble Company will make for furnishing marble for the new post office at San Francisco. Blocks of almost any size can be taken out without the slightest flaw, and the marble can be used for either building or veneering purposes. The samples shown will make a beautiful wainscoting.—*Transcript*.

SISKIYOU COUNTY.

The Blue Jay mine at Yreka, owned by C. B. Poole, is bonded for \$3500 by a Portland company. The development work done by the owner consists of two tunnels, the lower one tapping the vein at a depth of 250 feet.

It is reported that C. B. Jillson & Co., owners of the California Queen mine in Cottonwood district have made another rich strike. Ore that will assay \$150 per ton has been encountered, and the capacity of their five-stamp mill will immediately be doubled.

TUOLUMNE COUNTY.

Sonora Liftings.

It is said that big gold is being taken out of the Bonanza right along. Both in point of production and development it is the greatest pocket mine in the world.

The new hoist, one of the most powerful in the county, has been finished at the Mt. Jefferson. The mine is reported to be looking splendidly in all workings.

At the Arbona no work is being done for the present, but to keep the underground workings dry. The main shaft is down 200 feet, and a contract is to be let shortly for sinking 300 feet more.

The mill on the now celebrated Providence has been completed and ten stamps will be started on the initial run in a few days. The mill is framed for twenty and the other ten will be put to work early in the fall. The ledge in the mine continues to grow bigger and richer.—*Union Democrat*.

IDAHO.

Seven Devils District.

Quite a number of copper mines are being developed in the Seven Devils copper section in Idaho. The Peacock mine has a 65-foot shaft and five or six open cuts exposing the vein, which is about 400 feet long and averages 120 feet in width. A tunnel 20x20 feet is being run to tap the vein at a depth of 50 feet below the 65-foot shaft. The output of the Peacock for June was 6000 tons of ore, which runs about \$300 to the ton. It is estimated that there are 100,000 tons of ore in sight at the mine. There are several other mines more or less developed, and others on the eve of being developed. At the smelter, which is located ten miles from Snake river and the same distance from the Peacock mine, there is smelted every day of 24 hours 32,000 pounds of copper ore, 5200 pounds of charcoal, 11,000 pounds of coke, 12,000 of iron, 4000 of slack and 26,000 pounds of lime. This turns out about three tons of metallic copper ore valued at \$900.

MICHIGAN.

Notwithstanding the fact that not a ton of ore has been carried by the Northwestern Company from the Gogebic range to the ore docks at Escanaba this year, that the company has done the largest ore shipping business from the Escanaba docks that has been known for several years. Up to the present time nearly 400,000 tons of ore have passed over the docks. It is estimated that over 4,000,000 tons of ore will be shipped this season from Escanaba.—*Marquette Mining Journal*.

The Quincy mine will install a plant of hoisting machinery capable of raising rock from a depth of 8,000 feet—over a mile and a half.

The Baltic mine will begin producing copper not later than August 1. A three-mile railway extension between the mine and the stamp mill of the Atlantic Company, which is to treat Baltic copper.

Between ten and eleven thousand workmen are at present employed by the mines of the lake copper district.

MINNESOTA.

The remainder of the machinery from the abandoned Platt mine, of the Marquette range, has been received at the Penobscott Mining Company's mine, in the Mesabe Range, and will be installed at once.

The Sparta Iron Company, in the Mesabe Range, is employing about 275 men, of whom about half are in the stripping contracts of Winston & Dear and Gulbranson Bros., the rest at mining. The mine will ship about 250,000 tons this year. There are four shovels at work in the mine, each of the contractors having one and the mining company two, one each in stripping and mining.

MISSOURI.

The Black Mule Mining Company has five lots on the Iowa lease and two on the Kenwood lease. On the Iowa lease is a fine steam concentrating plant that will handle 150 tubs of dirt and make ten tons of zinc ore each shift. One face is 55 by 12 feet and another 26 by 18 feet, and the two faces 12 by 16 feet. At present the company employs 17 men and pays a large dividend every week.

other 26 by 18 feet, and the two faces 12 by 16 feet. At present the company employs 17 men and pays a large dividend every week.

Brownlee, McCallagh & Oompany have four lots on the Short Creek lease, at Central City, on which they have built a fine steam concentrating plant that will handle 300 tubs of dirt, and is making 10 tons of zinc ore every 10 hours. Drifting goes on at 85 feet on large face of zinc ore in timbering ground. In a second shaft, at 60 feet, is a good run of lead ore in yellow clay. The company makes 20,000 lbs. of lead ore weekly.—*Engineering and Mining Journal*.

MONTANA.

Takes a Three Years' Lease.

Gus Okerman of Armington, has just concluded a deal with W. G. Conrad and Paris Gibson of Anaconda, by which he gets a lease and bond for three years on the Barker, Gray Eagle and Equator mining claims, located in the Barker mining district. Mr. Okerman has started work on the Equator, where he has pumps and hoists on the ground, and is working three shifts of men. The tunnel on this claim is in about 50 feet. On the other claims about 100 men will be set at work as soon as they can be used. The development work on them is in about 200 feet already. The claim runs well on lead and silver, and the lessee expects to make them in a very short time into producers. This is another instance of the new life which is being exhibited in the mines of the Little Belts. They have lain idle, or many of them have lain idle, for several years; some few have been worked and these have shown that there is still money to be made in silver mining, and it is to the pluck of such few that the present revival may in a great measure be attributed.—*Helena Independent*.

NEW MEXICO.

Output of Hillsboro gold mines for the week ending Thursday, July 14th, 1898, as reported for the *The Advocate*:

	Tons
Wicks.....	15
K. K.	10
Richmond.....	15
Snake Group.....	50
Opportunity.....	15
Sherman.....	5
Cincinnati.....	10
Trippe.....	25
Rex (silver-lead).....	5
Total	150

Total output since January 1, 1898.—4,180.

NEVADA.

Silver Peak Items.

The Silver Peak mill shut down for a clean-up on the 2nd, after a month's run, and will start as soon as the necessary repairs are made. The mine is producing as much ore as the mill can crush. There is no reason for a shut down of either mine or mill for a long time to come.

It is understood that Sam Wasson has let a contract to run the Drinkwater tunnel. He has been working four or five men for the last few months there, and still has 200 feet to run before striking the ledge.

John Dern, president and manager of the

Mercur (Utah) Company, has been elected president of the Dexter Company of Tuscarora, Nev., and it is expected to prove beneficial for the Dexter Company's future operations. The Dexter is a rich mine and only needs a consistent management to bring it to the front as a dividend payer.

OREGON.

Virtue Mine Leased.

An agreement was reached between George W. Grayson, of Oakland, Cal., now in the city, owner of the Virtue mine, and O. G. Labaree, of Montreal, late of Spokane, July 11th, by which the former leases the Virtue mine to the latter for a period of 18 months. Mr. Grayson authorizes the statement that the papers will be signed tomorrow. Mr. Labaree holds an option on the Collateral mine, adjoining the Virtue, and the two mines will be worked jointly. Operations at the Virtue mine and mill will be resumed at once.

SOUTH DAKOTA.

Black Hills Notes.

The P. L. Gibbs ten-stamp mill has been started up again, after a short shut down. It will work on ore from the Omega mine, at Terraville.

On the first of the month, the lease held by W. E. Sharpe and associates on the Ulster group, at Ragged Top, expired and the owners of the property have concluded not to renew the lease, but will instead work the ground themselves. It is considered a rich proposition.

All of the steel frame work at the D. & D. smelter, which collapsed two weeks ago, has been replaced with the exception of one large beam which was so badly bent that it was thought best to send for a new one. Work has been retarded some time on the building on account of the unfortunate mishap. —*Black Hills Mining Review.*

UTAH.

The Great De La Mar Mill.

The tankage capacity of the great De La Mar mill at Mercur is to be doubled. So is that of the roasting plant. These conclusions have been arrived at by Capt. De La Mar, their owner, since his recent visit to the plant and property. It may be said that of the known ore bodies there is enough ore with which to supply the mill for at least five years. The captain does not believe in devoting five years to the extraction of these ore bodies, however, when it can be accomplished in less time, and it is on this principle that he has decided that the tankage must be doubled at once. At present the mill has a tankage capacity of 2,500 tons. The intention is to increase it to 5,000 tons. For this space was reserved when the first set of tanks were undertaken, and it will be no interference with these already in place to put in the additional set. The same may be said of the roasting plant. The enlargement may be made without necessitating a close down.

WASHINGTON.

Republic Camp.

Capital seems to be seeking investment on all of the three great parallel belts or leads that run north and south through the Republic Camp. The iron dyke, which is practically against the granite on the west, is com-

manding special attention. The Copper Mountain mine, the Bryan & Sewell, and the two Growlers are especially prominent. It is said that the Orphan-Murphy group are offering a free working bond on their seven contiguous claims for the very low price of \$1000 per claim, when the parties bonding are satisfied.

The Republic Mining Co. shipped ten carloads of ore, of 20 tons each, during the month of June. Returns have been received from the smelter for the first five carloads. The following figures show that there has been little change in the value of the ore and are considered a truly remarkable exhibit of its uniformity. These figures are taken from the records in the office of the Republic mine:

First car—Gold, 9.86 ounces; silver, 8.7 ounces. Second car—Gold, 11.88 ounces; silver, 9.3 ounces. Third car—Gold, 10.52 ounces; silver, 9.1 ounces. Fourth Car—Gold, 10.34 ounces; silver, 9.9 ounces. Fifth car—Gold, 11.75 ounces; silver, 10.2 ounces. —*Miner and Electrician.*

FOREIGN MINING NEWS

BRITISH COLUMBIA.

"The Le Roi is not shipping at present but is simply pushing development, and meanwhile the smelter at Northport is shut down. The shaft is down 750 feet, drifts have been run to the limits of the claim, and the ore bodies thus opened are now being developed. The War Eagle is well developed and is said to have from \$3,000,000 to \$4,000,000 worth of ore in sight. It is shipping 200 tons a day to the Trail smelter, and is putting in a hoisting plant with a capacity of 1,000 tons a day. The other large shipping mines are the Center Star, Iron Mask, and Monte Christo." —*Mining Critic.*

LOWER CALIFORNIA.

Messrs. Robert F. Harrison and Anthony Godbe, reputable Colorado mining men, have obtained an option on the Viznaga mine, at Mexican Gulch, Alamo district, from Messrs. Davis, Hartzel and others, of Los Angeles, Calif. While operations at the Viznaga mine have never entirely ceased, a change in the character of the ore, combined with other features which make much greater development necessary, has somewhat retarded work and require an expenditure to which the Viznaga Company, as at present capitalized, is inadequate. The Colorado gentlemen will directly commence exploiting, sinking the shaft to a greater depth and continuing the drifts.

MEXICO.

Sonora.

In Cajon Canon, in the Altar district, close to Cerro Colorado and about eight miles from El Tiro mine, the Amarillas mine, the property of Mr. Thos. M. Yerkes, is producing finely. The property is operated under bond by Messrs. Gibson and Doctor Bartleson. The ledge is from four to ten feet in width, and the ore is fine milling gold rock. Eight shafts, varying from 50 to 200 feet in depth, are on the property, with a great deal of development work, and it is estimated that there are 40,000 tons of high grade ore all ready for shipping. The mill will be started next month. —*Trader.*

PERSONAL NEWS ITEMS

STEPHEN ROBERTS of San Francisco, and M. F. LEACH of Colorado, both well-known mining men have been visiting Jordan, Mono county, Cal.

D. C. BOLEY, general manager of the Gold and Silver Extraction Company's cyanide plant and mines in Blacktail gulch, South Dakota, left for Chicago July 6th, to be gone ten days.

W. A. NEVILLS, the millionaire owner of the Rawhide mine, is in a critical condition at his rooms in the Palace Hotel, San Francisco. His doctor said: "He is quite ill with a bad heart attack, following grip. His condition is satisfactory, though somewhat serious."

F. W. JOHNSON, general manager of the Minneapolis Mining Company, South Dakota, left for Chicago last week on business connected with the company.

D. M. HYMAN, the well-known Aspen mine owner, returned during the week to Denver, Colo., from a trip of several months in Europe.

J. C. KORTZ, of Cleveland, Ohio, and Mr. W. E. BROOKS, two of the big owners of the Lida and Monarch mines at Leadville, were visitors to that camp.

JAMES D. HAGUE, the widely known mining engineer, and president of the Tom Boy Mining Company, was in the city during the week, on his way home to New York from a visit to the west.

C. E. COXE has left Zacatecas, Mexico, to accept a position at Zacualpan, State of Mexico, as branch manager for the Lewis Company, miners of gold, silver, lead and copper.

C. C. BABB of the Geological Survey is arranging for government work in the vicinity of Missoula, Montana.

MR. C. L. WARFIELD, who is president of the San Juan Mining and Development Co., of Silverton, Colorado, but who is at present located at San Diego, Cal., where he is devoting his entire time to mining matters, very recently in a personal interview with a representative of the JOURNAL, stated that from a late letter received from W. A. PTALEMY, secretary of the company, he was informed that Ed STROBER was offered \$5,000,000 for the Silver Lake property on June 1st, but has refused the offer as his price is \$6,000,000. MR. G. O. TINKER, the original locator of Silver Lake property, threw it up for the San Juan.

R. H. MURRAY of Detroit, Mich., spent a week in the Black Hills recently. He is one of the directors of the Detroit & Deadwood Mining Company that is operating at Two Bit.

H. F. BROWN of Chicago, who has been putting in roasting furnaces at the Golden Gate, Utah, mill, is recuperating at Auburn, Cal.

GARDNER F. WILLIAMS, superintendent and general manager of the Consolidated Mines, limited, of South Africa, controlling the Kimberley diamond mines, has been visiting relatives in Washington, D. C.

C. H. JAMES, who recently returned from South Africa, is in Shasta county, California, securing a lease from the Sierra Buttes Co. to work the old Uncle Sam mine.

GEO. F. HESSELMAYER, one of the pioneers of the Missouri zinc industry, which is now so prosperous, and the builder of the first zinc reducing furnace in that state, is now located at Kelpen, Georgia, as a mining engineer.

MR. F. E. JOHNSTON, who has just returned from a five months' trip to the Onida mines, 30 miles southeast of San Diego City, at what is called the Delzura location, reports that section improving. More people are coming in and there is a general interest taken by all. Prospects are very flattering.

DR. CABELL WHITEHEAD, assayer for the bureau of the mint, treasury department, is in Seattle, Washington, establishing the Government Assay office in that city.

LEW E. AUBURN, the mining engineer, has returned from an examination of mining property in the Rademacher district, Kern county, Cal.

CAPT. J. R. DE LA MAR was recalled by cable to Paris and is now on the ocean. He did not visit his Nevada mines. While in Utah he announced that the report of MR. HARTWIG A. COHEN's resigning as manager of his varied mining undertakings was entirely without foundation.

W. E. BARROWS of Philadelphia and D. T. Day, statistician of the United States Geological Survey, were at Weaverville and Junction City, Cal., last week, looking for platinum and iridium.

FRANCIS C. NICHOLAS, who has been for several months traveling in Colombia and Central America for the South American Exploration Company, has returned to New York. He reports general interest and activity in mining in those countries.

DR. GEO. S. BECKER of the U. S. Geological Survey, has sailed on the City of Puebla, which left San Francisco as a part of the fourth Manila expedition. He will make a geological reconnaissance of the most important of the Philippine group, to be incorporated in a Government report on the mineral resources of that region.

Quotations are per 100 lb from New York and vicinity as follows: Acetic acid, commercial, No. 8, \$1.40@1.50; muriatic acid, 18°, \$1.10@1.75; 20°, \$1.20@1.87½; 22°, \$1.35@2.25; according to quantity and brand. Nitric acid 36°, \$3.50@4.75; 38°, \$3.75@4.62½; 40°, \$4.00@4.87½; 42°, \$4.62½@5.25. Oxalic acid, \$6.50@6.75. Mixed acid, according to mixture. Sulphuric acid, 66°, \$1.10 for drums and \$1.15@1.75 for carboys. Chamber b. factory. Blue vitriol \$3.50@3.62½ for extra grades and \$3.37½ for ordinary.

BRIMSTONE.

Demand continues moderate. No arrivals are noted, and prices are: Futures lower and the quotations for cargoes to arrive is \$22.00 per ton and for best unmined seconds with \$20.00 named for thirds.

MURIATE OF POTASH.

We quote per 100 lbs. on basis of 80 per cent., as follows: New York and Boston, \$1.78 for 80@85 per cent., and \$1.81c. for 95 per cent.; Norfolk and Philadelphia, \$1.76½ for 80@85 per cent., and \$1.79½ for 95 per cent.; Charleston, Savannah, Wilmington, N. C. and New Orleans, \$1.78½ for 80@85 per cent., and \$1.81½ for 95 per cent. All for lots of 50 tons and upward.

KALIN.

Invoice weights as taken at port of shipment per ton of 2,240 lbs. testing 12.4 per cent. actual potash, equivalent to 23 per cent. sulphate of potash, \$8.55 @ \$8.80 for New York and Boston; \$8.90 @ \$9.15 for Norfolk, and Philadelphia; and \$9.05@9.30 for Charleston. Sa-

vannah, Wilmington, N. C., and New Orleans.

NITRATE OF SODA.

Market is heavy, supply being large and several arrivals expected soon. Prices for spot have been quoted at \$1.55 up to \$1.62½, according to seller, while future shipments can be had for \$1.57½ @ \$1.60 per 100 lbs.

FINANCIAL NOTES.

The statement of the United States Treasury, on Thursday, July 14th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	July 14	Changes.
Gold.....	\$175,627,701	I. \$5,947,553
Silver.....	11,011,324	I. 414,972
Legal Tenders.....	42,565,762	I. 6,793,332
Treas'y Notes, etc.....	3,222,701	I. 533,037
Totals.....	\$232,427,553	I. \$13,508,894

Treasury deposits with national banks amounted to \$53,352,093, an increase of \$7,133,807 during this week.

Average Monthly Prices of Silver.

In New York per ounce Troy, from January 1st, 1898, and for the years 1897 and 1896:

Month	1898	1897	1896
	Cents.	Cents.	Cents.
January.....	56.77	64.79	67.13
February.....	56.07	64.67	67.67
March.....	54.90	63.06	68.40
April.....	56.02	61.85	67.92
May.....	56.98	60.42	67.78
June.....	58.61	60.10	68.69
July.....	59.61	60.75	68.75
August.....	54.19	67.34	67.34
September.....	55.24	65.68	68.00
October.....	57.57	66.05	68.05
November.....	57.91	64.93	68.93
December.....	58.01	65.24	68.24
Year.....	59.79	67.75	67.75

Gold and Silver Exports and Imports.

At all United States ports, June, 1898, and years from January 1st, 1898 and 1897.

	Coin and Bullion	Exp.	Imp.	In Ores	Exp.	Imp.
Gold—						
June	\$ 375,529	\$ 3,184,774	\$.....	\$145,838		
1898	6,048,560	90,244,751	72,441	2,639,042		
1897	25,000,717	3,715,240	93,188	2,220,314		
Silver—						
June	4,156,650	799,755	1,229,048		
1898	24,392,928	3,202,116	112,699	9,276,271		
1897	27,894,900	4,419,889	259,150	10,600,481		

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Specie shipments by water from San Francisco in June included \$3,592,390 gold, all for New York, and \$602,753 silver, the latter made up of \$298,886 Mexican dollars, \$31,717 Peruvian sols, \$2,700 United States Coin, and \$269,450 bars. For the six months ending June 30th the shipments were as follows:

	Gold	Silver	Totals
Hong Kong.....	\$21,438	\$2,408,402	\$2,429,840
Shanghai.....	196,578	196,578	393,156
Japan.....	3,000	3,000	6,000
India.....	415,900	415,900	831,800
Honolulu.....	27,000	27,000	54,000
Tahiti.....	2,411	2,411	4,822
Central America.....	22,425	103,957	126,382
Total foreign.....	\$241,274	\$3,154,927	\$3,396,201
New York.....	19,432,155	394,476	19,826,631
Totals.....	\$19,673,429	\$3,549,403	\$23,222,832
Totals 1897.....	16,435,136	5,473,955	21,909,091

The statement of the Bureau of Statistics for June puts the exports for that month at \$94,808,263, which is still a very high figure, while imports were \$51,267,591. For the fiscal year ending June 30th the statement is as follows:

	1897.	1898.
Exports.....	\$1,050,933,556	\$1,231,311,868
Imports.....	754,739,412	616,052,844
Excess, exports.....	\$286,263,144	\$615,259,024
Add excess of exports, silver.....		31,413,411
Total.....		\$646,672,435
Deduct excess of imports, gold.....		104,985,283
Net apparent balance.....		\$542,687,152

The gold and silver movement in detail will be found in the usual place at the head of this column.

POSITIONS WANTED

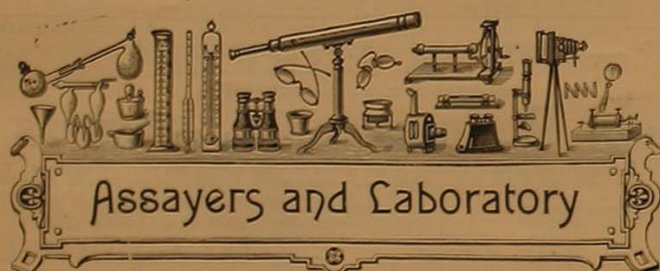
Advertisements of this class containing not more than five lines will be inserted for not exceeding three months in any year, free of charge, to all paid-up annual subscribers. Other than above \$1.00 per month will be charged. Advertisements not accepted for less than one month.

WANTED, by a young experienced man, position as quartz mill man, one who can keep mill running.
Address, A. E. CHARLESWORTH, LOCKPORT, CAL.

WANTED, by a young man, a position as Assayer, etc.; experienced, competent and has a good knowledge of all metallurgical operations. Good references.
Address, T. K. JOURNAL OFFICE, Los Angeles, Cal.

WANTED—Situation by Millman and Assayer; Wages reasonable; Good references.
Address "H"
JOURNAL OFFICE

EXPERIENCED Assayer and Cyanide operator desires engagement. The successful and economical treatment of silty ore or tailings by cyanide a specialty.
Address W. V. WATSON, Ely, White Pine Co., Nev.

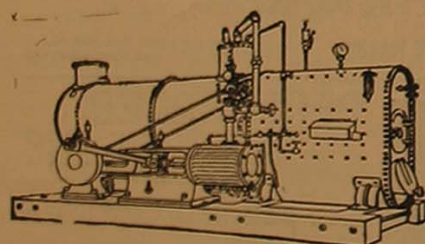


Assayers and Laboratory

Glassware and Porcelain Ware, Magnifying Glasses, Thermometers, Altitude Barometers, Compasses, and Microscopes, Wholesale and Retail. Correspondence Solicited. Prices quoted on application.

Pacific Optical Company,

245 S. Spring St., Los Angeles, Cal.

Engines
Boilers
Saw Mills

Write for Catalogue and Prices.

RUSSELL & CO. PORTLAND, OREGON.

FOR SALE!

One 36"x24" Water Jacket Furnace, Boiler, Engine Blower, Rock Breaker, Scales, Shafting, Pulleys, Belting, Tools and all fittings and fixtures complete and new, built by Frazer & Chalmers; also one 16x42 Hamilton Corliss Engine; one 12x20 double Cylinder Hoisting Engine. Will be delivered f. o. b.

W. E. DAME, CERRILLOS, NEW MEXICO

ASSAYER and CHEMIST

Mark samples plainly, advise by letter of full details, with charges enclosed. Postage on one cent per ounce.

C. H. VOLL,

SEATTLE, WASHINGTON

34 Boxwell Bldg.

The Baker & Adamson Chemical Co.

MANUFACTURERS OF

Strictly Chemically Pure Acids and Chemicals and Ashless Filter Papers

EASTON,

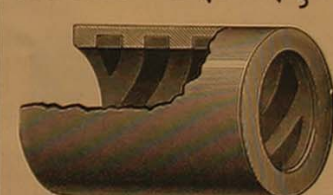
PENNSYLVANIA

ADOLF FRESE
ENGINEERING INSTRUMENTS

Barometers, Thermometers, Field Glasses, Microscopes and Accessories. Repairing Promptly Done.

126 S. Spring St., LOS ANGELES, CAL.

Oilless Bearings,



For

Rope Tramways, HOISTING Engines, Tackle Blocks, Cam Shafts in STAMP MILLS. A Practical BEARING that RUNS WITHOUT OIL.

The Graphite Lubricating Company

BOUND BROOK, N. J.

Sulphuric Acid

FOUNDRY

Mining Machinery

Iron and Brass Castings of all kinds, Shoes and Dies, Pumps, Engines, Boilers, Stamp Mills, etc., etc. Machinists and Foundrymen.

Standard Iron Works,

PHOENIX, . . . Arizona

A. F. JUDSON, E.M.

Geologist and Mining Engineer,

Mines Examined and Reported on.

COLTON, CALIFORNIA

A. A. WARREN

ASSAYER AND ANALYTICAL CHEMIST

COLTON, - CALIFORNIA

Manufactured by the Western Chemical Co. Denver, Col.

For Chlorination Refining and other processes. Also Muriatic and Nitric Acids, Blue Vitriol, Copperas Refined Sulphate of Soda, Etc.

ASSAYERS AND CHEMISTS

WADE & WADE

Best and Oldest Establishment in Southern Cal.

115½ N. Main St., Los Angeles, Cal

THE JOHANNESBURG SAMPLING WORKS

Purchasers of Gold, Silver, Copper and Lead Ores and Concentrates

Cash Returns Made Within Twenty-four hours after receipt of Ore.

CHAS. R. WORGES, MANAGER,

Johannesburg, Cal.

MINING STOCK QUOTATIONS

BOSTON

Aetna Con.	do rights	55
Allouez	Gold Coin	1.00
Anaconda	Humboldt	4.75
Arnold	Illinois Steel	60.00
Ash Bed.	Lake Sup. Iron	—
Atlantic	Merced	75
Baltic	New Idria Ag.	—
Bonanza	Old Dominion	28.00
Boston and C.C.	Oscoda	55.25
Boston & Mont'a 21 1/2	Parrott	22.00
Butte & Boston	Pioneer	5.75
Calumet & Hecla 575	Quincy	118 1/2
Catalpa	San Isabel	—
Centennial	Tamarack	165.00
Dominion Coal	Tecumseh	2.00
Dominion Pref.	Wolverine	23.00
Franklin		14.75

NEW YORK

Alamo	03 1/2 Homestake	28.50
Alice	40 Iron Silver	—
Annetta	60 Mexican	30
Best & Belcher	60 Mollie Gibson	18
Bran swick	05 Ontario	4.50
Bulwer	— Ophir	—
Crown Point	65 Pharmacist	10
Con. Cal. & Va.	— Plymouth	3.00
Cripple Creek Con	08 1/2 Quicksilver	11.00
Deadwood	11 25 Quicksilver pfd.	11.00
Favorite	04 Standard	1.60
Fortuna	45 Union Con	—
Golden Fleece	45 Yellow Jacket	—
Gould & Curry	—	—
Hale & Norcross	—	—

COLORADO SPRINGS STOCKS

Alamo	02 Jack Pot	03 1/2
Anaconda	52 1/2 Lexington	80
Argentum Juanita	28 Lillie	80
Rob Lee	08 Magnet R.	003 1/2
Creede & C. C.	05 Marion	—
C. C. Consolidated	09 Matoa	15
Des Moines	— Mollie Gibson	24 1/2
Elkton Con	83 Moon-A-C'r	74 1/2
El Paso	07 Moonie	—
Fanny R.	16 New Haven	01 1/2
Favorite	— Pharmacist	05
Fudley	03 1/2 Pilgrim C.	—
Franklin	— Portland	89 1/2
Golden Crater	— Pr. Albert	61 1/2

Golden Fleece	30 Specimen	—
Gold & Globe	— Theresa	00 1/2
Hayden	005 Trachyte	01 1/2
Ing. Con.	06 1/2 Union Gold	02 1/2
Isabella	23 1/2 Work	—

LOS ANGELES, CAL.

Amargosa	05 Lucky Star	6.00
Brown Dake	07 1/2 Maganetta	50
East Armargosa	60 Mohawk Action	03
Empire Copper	25 Old Dominion	1.25
Gold Bug	1.00 Pacific Con	1.25
Grand Central	02 Rand Mt.	1.25
Iron Mt.	02 Sun Dance	40
Laurel Mt.	02 1/2 Val Verde	1.50
Little Butte	15 Wedge	09 1/2

SAN FRANCISCO

Alpha	— Eschequer	—
Alta Con	10 Gould & Curry	21
Andes	09 Hale & Norcross	1.65
Belcher	23 Justice	55
Best & Belcher	27 Mexican	21
Bodie	10 Ophir	80
Bullion	10 Overman	21
Challenge	26 Potosi	10
Chollar	15 Savage	67
Confidence	85 Sierra Nevada	11
Con. Cal. & Va.	49 Union Con	07
Con New York	— Utah	08
Crown Point	13 Yellow Jacket	—

SALT LAKE CITY

Alice	60 Lucky Bill	—
Ajax	34 Malvern	35
Alliance	25 Mammoth	1.90
Anchor	60 Maxfield	—
Buckeye	05 Mercu	7.22 1/2
Bull, Beck	8 10 Morgan	—
Cent. Eureka	40 Northern Light	01 1/2
Chloride Point	95 Omaha	40
Dalton	01 Ontario	5.00
Daly	1.00 Overland	—
Daly West	4.50 Richmond Ana.	—
Dalton & Lark	10 1/2 Conda	05 1/2
Dexter	1.25 Rover	—
Eagle	05 1/2 Sacramento	62
Eureka Hill	— Silver King	22.50
Four Aces	08 1/2 Sioux Con	50
Galena	55 Sunbeam	09
Gemini	— Sunshine	32 1/2
Geyser-Marion	79 Swansea	2.50
Grand Central	7.25 So Swansea	1.17 1/2
Homestake	02 Utah	54
Horn Silver	1.42 1/2 Utah Con	40
Little Pittsburg	02 1/2 Young America	60

ROSSLAND, BRITISH COLUMBIA.

Alberta	05 Josie Mac	12 1/2
B. C. Gold King	07 Josie	38
Beaver	10 Jumbo	75
Big Three	10 Knight Templar	05
Bluebird	07 Kootenay-London	10
Brice	10 L. R. Roy	8
Butte	01 1/2 Lilly May	13
Caledonia Con	05 1/2 Mabel	15
California	15 Mayflower	10
Camp Bird	05 Monita	18
Celtic Queen	05 Monte Christo	18 1/2
Centre Star	— Morning Star	03
Colonna	24 Mugwump	03 1/2
Commander	18 Nest Egg	05
Deer Park	12 1/2 Northern Belle	10
Della Colla	02 Novelty	09
Delaware	12 O. K.	10
Eastern Star	20 Palo Alto	05
Enterprise	20 Phoenix	13 1/2
Eric	03 1/2 Poorman	10
Eureka Con	05 1/2 R. E. Lee	15
Evening Star	08 1/2 Red Eagle	05
Georgia	10 1/2 Red Mount, View	15
Gertrude	10 1/2 Red Point	10
Golden Drip	15 Ross'd H'mest'ke	05
Good Hope	03 1/2 Rossland, Red Mt.	20
Grand Price	02 1/2 St. Elmo	08
Great Western	08 St. Paul	12 1/2
Hattie Brown	— Silver Bell	04
Helen	04 Silverline	06
High Ore	04 1/2 So Cross & W. Con	20
Imperial	10 Virginia	12
Iron Horse	20 War Eagle Con	1.00
Iron Mask	35 West Le Roi	21
I. X. L.	10 White Bear	11

DENVER STOCK REPORT.

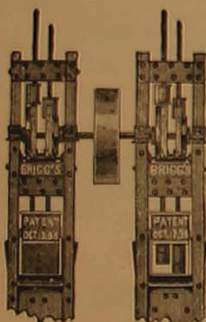
Aetna	001 1/2 Keystone	04
Anaconda	51 Lillie	30
Arcadia	00 1/2 Moon A.	75
Argentum Junita	28 Mt. Rosa	12 1/2
Banner	07 Old Gold	01 1/2
Bob Lee	002 1/2 Peoples	01 1/2
C. C. Con	08 1/2 Pilgrim C.	002 1/2
Elkton	30 1/2 Pine Creek	002 1/2
El Paso G	06 1/2 Portland	—
Enterprise	02 1/2 Prince Albert	01 1/2
Garfield Grouse	06 Republic	02 1/2
Geo. Washington	003 1/2 Sacramento	02 1/2
Golden Eagle	34 Specimen	003 1/2
Gold Coin	88 Tamarack	004 1/2
Gilpin & C. C.	08 1/2 Union Gold	10 1/2
Gilpin Four	004 1/2 Virginia M	03 1/2

Iron Glad	02 1/2 Wheel of Fortune	002 1/2
Isabella	23 1/2 Work	02 1/2
Jack Pot	03 1/2	—

MEXICO

Name of Company	State	Price
Allianza	Hidalgo	5
Amistad y Concordia	"	24
Angustias	Guajalato	710
Arevalo y Anexas	Hidalgo	240
Asturiana y Anexas	Zacatecas	250
Barradon y Cabras	Durango	300
Barlome de Medina	Hidalgo	100
Cabezon y An	Zacatecas	30
Candelaria de Pinos	"	150
Candelaria de Panuco	"	20
Candelaria de Chalch	"	80
Capazaya	Durango	120
Carmen	Hidalgo	350
Castellana y San Ram	"	80
Cerro Colorado	Chihuahua	10
Cinco Senores y An	Guajalato	650
Concepcion y Anexas	S. Luis Potosi	280
El Oro	Guajalato	100
Espananza y An	Mexico	150
Guadalupe	Guajalato	100
Huastla	Santa Ana	100
Luz de Borda	Michoacan	40
Luz de Maravillas	Hidalgo	200
Pabellon	"	150
Palma	Zacatecas	150
Paraiso de los Com	Hidalgo	900
Real del Monte	"	5
Refugio y Va	Durango	80
Restauradora	"	05
Rosario y Anexas	Hidalgo	270
San Francisco	"	100
S. Ped. Chichahuates	"	925
San Rafael y Anexas	"	400
do, Free Stock	"	20
San Rafael del Oro	S. Luis Potosi	730
Ste. Maria de la Paz	Durango	400
Sirena	Hidalgo	250
Soleidad	"	40
Sorpres	Puebla	27
Trinidad	Hidalgo	15
Tlaxingo	"	160
Union	Guajalato	5
Zaragoza	"	—
Zomalahuan (gold)	Vera Cruz	—
Zona Min. de Poros	Guajalato	—

NOTE—The above Mexican stocks are figured on the basis of Mexican silver



Krogh Manufacturing Company

Successor to San Francisco Tool Co.'s Machine & P'f'g Dept.
MANUFACTURERS OF AND DEALERS IN

MINING AND PUMPING MACHINERY,

COMPRISING

Briggs' 2-Stamp Tripple-Discharge Quartz Mill, of Latest Improved Pattern, Rock Breakers, Ore Feeders, Concentrators, Engines and Boilers, Hoisting Rigs to be operated by Horse, Steam Power or any other motor; Ore Cars and Ore Buckets, Cornish and Jack-head Pumps, Triple-Acting Pumps, Centrifugal Sand and Gravel Pumps, Wooden Tanks and Pumps for the Cyanide Process, Pipe and Gate Valves, Link Chain Elevators for elevating and conveying all kinds of material. Estimates as to cost of machinery and its erection furnished upon application. Write for Catalogue and Prices.

OFFICE AND WORKS AT

51 Beale St. and 9 to 17 Stevenson St., San Francisco, Cal.

Chas. P. Grimwood,

Mining Engineer AND Metallurgist

Laboratory, 214 Pine Street,

SAN FRANCISCO, CAL.

Assay Office *

LEW E. AUBURY

115 W. First St.,

Opp. Nat'k House Los Angeles



BRANCH OFFICES:

1428 E St., SAN DIEGO, CAL.

523 1st AVENUE, SPOKANE, WASH.

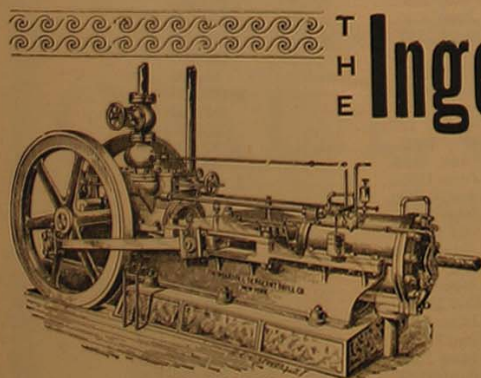
The Southern California Lumber Co., Stimson Bk., Los Angeles, Cal., Chas. Wier Manager, sells

LUMBER

At Wholesale Prices

Mining Timbers a Specialty

Write for Prices



AIR COMPRESSOR

THE Ingersoll-Sergeant Drill Co.,

Rock Drills

AND Air Compressors

MODERN, DURABLE AND GUARANTEED to do the Work.

Write for Full Particulars

26 Cortlandt Street,

New York City

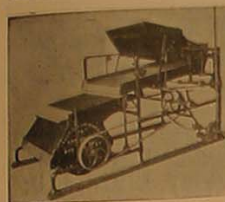


ROCK DRILLING

INCORPORATED MINES PAYING DIVIDENDS.

	NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
1	Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	Q.
2	Ajax	Utah	300,000	3,000,000	10			1,000,000	G, C, S, L.
3	Alaska, Treadwell	Alaska	200,000	5,000,000	25	35 1/2	October, 1897	3,250,000	G.
4	Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
5	Alice	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G.
6	Alice	Utah	400,000	10,000,000	25	05	April 1898	1,075,000	S, L, G.
7	Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1897	3,750,000	C.
8	Anchoria Leland	Colorado	600,000	600,000	1	01	July 1898	144,000	G.
9	American Gold	Colorado	300,000	3,000,000	10	02	Mar 1898	291,000	G, S, L.
10	Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	S.
11	Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G, C, S.
12	Bangkok C-Bell	Colorado	600,000	600,000	1	01	July 1898	107,510	S, L, G.
13	Big Six	Colorado	500,000	500,000	1	00 1/2	May 1898	15,000	G, S.
14	Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G, C, S.
15	Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,485,000	G, S.
16	Bunker Hill and S	Idaho	300,000	3,000,000	10	05	Oct 1897	324,000	S, L.
17	Cariboo	British Col.	800,000	800,000	1	02	May 1897	156,965	G.
18	Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct 1897	50,850,000	C.
19	Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S, L.
20	Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	16,000	L.
21	Charleston	South Car.	10,000	1,000,000	100	1 00	Feb 1897	150,000	
22	Champion	California	34,000	340,000	10	25	Aug 1897	278,200	G.
23	Chloride Point	Utah	500,000	500,000	1	01	Dec. 1897	5,000	G, S.
24	Crescent	Utah	24,000	600,000	25		July 1897	280,000	
25	Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S, L.
26	Deadwood Terra	Dakota	200,000	5,000,000	25	40	June 1897	1,320,000	G.
27	De Lamar	Idaho	400,000	2,000,000	5	25	Jan 1897	2,250,100	S, L.
28	Della S.	Colorado	1,000,000	1,000,000	1	10	Jan 1897	60,000	G.
29	Doe Run	Missouri	5,000	500,000	100	50	October 1897		L.
30	Elkton Consolidated	Colorado	1,250,000	1,250,000	1	01 1/2	July 1898	555,710	G, S.
31	El Paso	Colorado	650,000	650,000	1	01	Jan 1893	12,093	G, S.
32	Eureka Hill	Utah	10,000	1,000,000	100		1897	1,850,000	
33	Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S.
34	Galena	Utah	100,000	1,000,000	10	05	Jan. 1897	71,000	G, S, L.
35	Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Feb. 1897	24,000	G.
36	Gemini	Utah	5,000	500,000	100		1897	500,000	
37	Geyser-Marion	Utah	300,000	1,500,000	5	02	May 1898	84,000	G.
38	Golden Fleece	Colorado	600,000	600,000	1	01	Feb. 1897	569,179	G, S.
39	Gold Coin of Victor	Colorado	1,000,000	1,000,000	1	01	June 1898	80,000	G.
40	Golden Cycle	Colorado	21,000	1,000,000	5	00 1/2	June 18 8	150,000	
41	Gold Coin	Colorado	200,000	1,000,000	5	05	Nov 1897	160,000	G, S.
42	Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
43	Hecla Consolidated	Montana	30,000	1,500,000	50	50	Feb 1897	2,175,000	S, G, L, C.
44	Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S, L.
45	Highland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,424,918	G.
46	Holy Terror	S. Dakota	300,000	300,000	1	03	Sept 1897	18,000	G.
47	Homestake	Dakota	125,000	12,500,000	100	25	Oct 1897	6,431,250	G.
48	Hope	Montana	100,000	1,000,000	10	10	Nov 1897	732,252	S.
49	Horn Silver	Utah	400,000	10,000,000	25	05	April 1898	5,120,000	S, L.
50	Idaho	Brit. Col.	500,000	500,000	1	05	Mar 1897	152,000	
51	Iowa	Colorado	1,000,000	1,000,000	1	00 1/2	June 1898	90,000	G.
52	Iron Mountain	Montana	500,000	5,000,000	10	01	Sept 1897	497,500	S.
53	Isabella	Colorado	2,250,000	225,000	100	00 1/2	June 1897	270,000	G.
54	Kearsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
55	Last Chance	Brit. Col.	500,000	500,000	1	04	Jan 1897	42,000	S, L.
56	Le Roi	British Col.	500,000	2,500,000	5	10	Oct 1897	625,000	G.
57	Lillie	Colorado	1,000,000	1,000,000	1	01	July 1898	99,100	G.
58	Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1896	3,240,000	I.
59	Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897	640,000	
60	Morning Star	California	2,400	240,000	100	8 00 1/2	Sept. 1897	558,600	G.
61	Mt. Rosa	Colorado	1,000,000	1,000,000	1	02	Jan 1898	60,000	G.
62	Mercur	Utah	200,000	5,000,000	25	18	May 1898	1,086,000	G.
63	Mammoth	Utah	400,000	10,000,000	25	05	June 1898	1,250,000	G, S, C, L.
64	Moon Anchor Gold	Colorado	600,000	600,000	1	07 1/2	July 1898	216,000	G.
65	New Elkhorn	Colorado	300,000	1,500,000	5	24	Sep. 1896	72,000	G.
66	New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	Oct. 1897	832,500	S, G.
67	Napa	California	100,000	700,000	7	20	Oct 1897	870,000	Q.
68	New Idria Quicksilver	California	100,000	500,000	5	10	Sept 1897	20,000	Q.
69	Ontario	Utah	150,000	15,000,000	100	75	Dec. 1897	13,642,500	S, L.
70	Osceola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
71	Parrot	Montana	230,000	2,300,000	10	06	June 1897	1,492,080	C.
72	Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897	20,750	
73	Portland	Colorado	3,000,000	3,000,000	1	01 1/2	June 1898	1,492,080	G, S.
74	Princess	Colorado	1,000,000	1,000,000	1	00 1/2	Feb 1897	45,000	G.
75	Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	C.
76	Rambler-Cariboo	Brit. Col.	1,000,000	1,000,000	1	02	April 1897	40,000	
77	Raven	Colorado	1,500,000	1,500,000	1	01	March 1898	20,000	G.
78	Reco	Brit. Col.	1,000,000	1,000,000	1	50 1/2	May 1897	187,500	S, L.
79	Sacramento	Utah	1,000,000	5,000,000	5	00 1/2	June 1898	35,000	G.
80	Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	June 1898	3,300,000	S.
81	South Swansea	Utah	150,000	150,000	1	05	April 1898	90,000	S, L.
82	Standard	California	200,000	20,000,000	100	10	Sept 1897	3,757,868	G, S.
83	St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897	24,000	L.
84	Silver King	Utah	150,000	3,000,000	20	25	June 1898	1,575,000	S, L, G.
85	Slocan Star	Brit. Col.	2,000,000	1,000,000	0.50	05	Mar 1897	350,000	
86	Smuggler	Colorado	1,000,000	1,000,000	1	01	June 1898	1,035,000	S, L, Z.
87	Smuggler Union	Colorado	50,000	5,000,000	100	1 00	Oct 1896	150,000	G, S.
88	Swansea	Utah	100,000	500,000	5	05	June 1898	100,000	S, L.
89	Tom Boy	Colorado	200,000	2,000,000	10	10	Dec 1896	600,000	G.
90	Tamarack	Michigan	60,000	1,500,000	15	3 00	June 1897	4,950,000	C.
91	Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	S.
92	Utah	Utah	100,000	1,000,000	20	01	Dec. 1897	177,000	G, S.
93	Utah Consolidated	Utah	30,000	150,000	5	02	Sept. 1896	3,000	S, L.
94	Victor	Colorado	200,000	1,000,000	5	50	June 1898	955,000	G.
95	Vindicator	Colorado	1,500,000	1,500,000	1	05	July 1898	76,125	G.
96	Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897	12,000	
97	War Eagle	British Col.	500,000	500,000	1	06	October 1898	187,000	

S, Silver. G, Gold. L, Lead. C, Copper. Q, Quicksilver. I, Iron. B, Borax. Z, Zinc.

**KLONDIKE MACHINE.**

If you are going to the Klondike or any other country to placer mining you cannot afford to be without one of our placer machines. It will work any class of placer ground, river or sea sands, it will make a clean saving of the fine float gold as well as the coarse. The material is separated into four different grades in passing through the machine, a coarse screen is arranged over the hopper to cut out the rocks and gravel; it is fed regularly on to the screen below; a series of riffles are arranged at the end of this screen to catch any coarse gold that will not pass through the screen, the material then passes over the riffle table (steel hungarian Riffles) on to the screen over the amalgamating plates and Cylinder, this fine screen cuts out all the coarse gauge, allowing nothing but the water and fine material to pass through the Amalgamator, this avoids any scouring whatever. The screen over the Cylinder has a side shake; the riffle table and hopper has an end shake moving both together, can be set at any pitch, each separately, can be run fast or slow to suit the work being done, this machine is just the machine for dry countries, as it requires very little water. By attaching one of our pumps the water can be used over and a large amount of work can be done with a small amount of water, the pump will lift water 20 feet from a stream or well. As a gold saver this machine has no equal, it is light, simple, and durable, can be packed, the heaviest piece weighing 50 pounds, built almost entirely of metal, three sizes, price \$150, \$300, \$450, capacity 10, 25 and 40 tons; weight, 175, 400 and 550 pounds. **PACIFIC MINING MACHINERY CO.** Send for full descriptions. 129 First St., San Francisco, Cal.

**The Pulsometer Steam Pump**

"THE MINER'S FRIEND" Often Imitated--Never Equaled Over 20,000 In Use

RECENT IMPORTANT IMPROVEMENTS

The Handiest, Simplest and Most Efficient Steam Pump for General Mining, Quarrying, Railroad, Irrigation, Drainage, Coal Washing, Tank-filling and for Pumping Back Liquids heavily impregnated with sediment. Muddy or gritty liquids handled without injury to the Pump.

AGENTS

PARK & LACY CO., A. M. HOLTER HDW. CO., MITCHELL-LEWIS & STAVEL CO.
San Francisco, Cal. Helena, Mont. Portland, Oregon.

Pulsometer Steam Pump Co.

133 Greenleaf Street, New York City

CATALOGUE ON APPLICATION
CORRESPONDENCE SOLICITED

See those wires--how they Interlock? Note the smooth surface also.



No Displacement of Wires in any event. * Gives three times the service of other cables and adds correspondingly to the life of the rolling stock.

THE PATENT**LOCKED-COIL TRACK CABLE**

IS USED ONLY ON THE PATENT

Bleichert Wire Rope Tramway

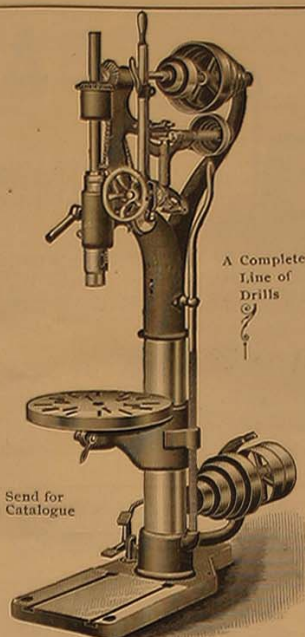
AND OTHERS, MANUFACTURED BY

THE TRENTON IRON COMPANY, Trenton, N. J.

ENGINEERS AND CONTRACTORS

And Sole Licensees in North America for the Bleichert System. Also, Wire Rope Equipments for Surface and Underground Haulage, Transmission of Power, etc. Illustrated book upon application.

For Particulars, address, **Newton M. Bell, Agent,** 109 CALIFORNIA STREET, SAN FRANCISCO, CAL.



Send for
Catalogue

UPRIGHT DRILLS

THAT ARE MADE BY

W. F. & JOHN BARNES CO.,
105 Ruby Street, Rockford, Ill.

ARE SOLD IN
San Francisco by
HENSHAW, BUCKLEY & CO.

Established 1872.
F. E. BRANDIS, SONS & CO.
ENGINEERING
INSTRUMENTS
FOR ALL PURPOSES.
812-814 GATES AVE., BROOKLYN, N. Y.
Catalogues mailed on application.

Founded by Mathew Carey, 1786.
HENRY CAREY BAIRD & CO.,
Industrial Publishers, Booksellers and Importers
810 Walnut St., Philadelphia, Pa., U.S.A.
Our new and revised Catalogue of Practical and Scientific Books, 92 pages, 350, complete to February 1, 1898, and our other catalogues and Circulars the whole covering every branch of Science applied to the Arts, sent free of postage to any one in any part of the world who will furnish his address.

THEODOR LEXOW

185 Broadway New York

Importers of

CARBONS

— FOR —
DIAMOND DRILLS and all Mechanical Purposes

Henry Demmert

I. C. YAWGER, SUCCESSION TO VICTOR BISHOP & CO.



21 MAIDEN LANE

NEW YORK

CLEANED WITHOUT ALTERING ADJUSTMENT **THE LEVER RULING PEN**

SEND FOR DESCRIPTIVE CIRCULAR.
THEO. ALTENEDER & SONS, PHILADELPHIA

DENVER PUBLIC --- SAMPLING WORKS,
M. E. SMITH, PRESIDENT.
ORES SOLD ON THE PUBLIC MARKET. **Denver, Colo.**

MINERALS WANTED

Gold and Silver Quartz Specimens, Crystals, Opals, Turquoise, etc., etc.

Buy in Any Quantities--Pay good prices--Cash

E. C. MOLLER,

538 EAST 86th STREET,

NEW YORK

Dividend Paying and Investment Mining Stock

W. E. HUBBARD & CO.,

Tel. 505

15 W. 2d South St., Salt Lake City, Utah

CALDWELL BROS.

Tacoma and Seattle, Wash.

MANUFACTURERS AGENTS

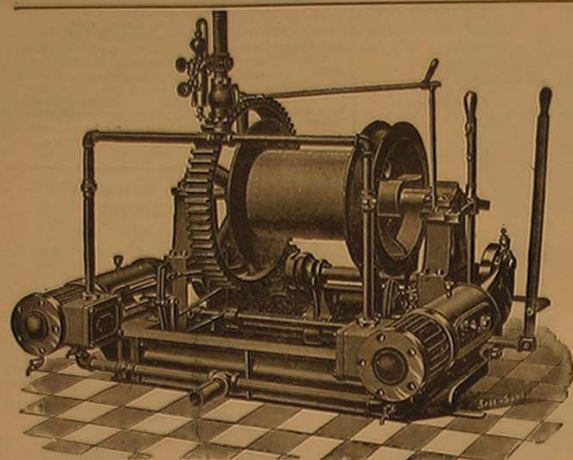
AND DEALERS IN

MACHINERY and MINE SUPPLIES

We carry a Very Large and Complete Stock



It Will Pay You to Write Us for Quotations



BAKER & HAMILTON,

HIGH GRADE

Engines, Boilers, Ice Machines, Mining Tools, Etc., Etc.

THIS CUT represents one of our improved DOUBLE STEAM HOISTING ENGINES. We have them in sizes from 12 H. P. up (with or without boilers). They are constructed with the greatest care by engineers familiar with the best previous practice. They come with sectional iron frames, reversible link motions, etc.; consequently can be shipped knocked down, in pieces suitable for transportation over difficult roads and trails. We also have them with the Single Engines from 6 H. P. up; Boiler and Engine contained on same frame.

Write for Prices; They Will Interest You

SAN FRANCISCO, CAL.

BRANCH HOUSES:
Sacramento and Los Angeles.

FACTORY:
Benicia, California

Expense

In the operation of Mines
is reduced by using our

Car Wheels.

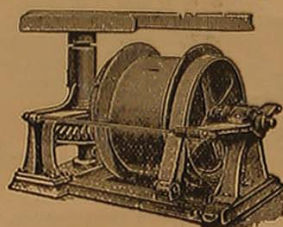
Price and wearing qualities
reduce the expense.

Globe Iron Works

STOCKTON, CAL.

WRITE FOR PRICES.

EL PASO AUTOMATIC HORSE WHIM



This is the latest improved horse power hoist offered prospectors, possessing "all the best features of other styles with improvements added. The end thrust is entirely done away with, thus increasing the efficiency and saving considerable wear. The automatic safety break is so arranged that accident is impossible, being in position until held out by operator to lower bucket. It is made entirely of iron and steel. Weight, about 1,200 pounds. Heaviest single piece, 275 pounds. Price, f.o.b. Colorado Springs, \$90. Cars, Buckets, Rope, Rails, etc.; The Climax Engines. Manufactured by

The Hassell Iron Works Co.,
COLORADO SPRINGS, COLO., U. S. A.

UNION HARDWARE AND METAL CO.

DEALERS IN—

Boiler Tubes, Iron Pipe and Fittings

RAILROAD, MILLING, MINING and FOUNDRY SUPPLIES

14 and 216 N. Los Angeles Street

Los Angeles, Cal.

Assaying in all its Branches.

Determinations Accurately Made



The Bi-Metallic ...

Assay Office

and Chemical Laboratory

R. A. PEREZ, E. M., Manager

Formerly: Chief Assayer in El Paso Smelting Works, El Paso, Texas.
Assistant Chemist Consolidated Kansas City Smelting and Refining Co.,
Argentine, Kansas.

124 South Main Street,

Los Angeles, Cal.

IMPERIAL

(Trade Mark)

BOILER COMPOUNDS

For the Prevention and Removal of Scale—in Steam Boilers.

ESTABLISHED 1876

Please mail us a specimen of your Boiler Scale which we will analyze for you Free of Charge and prepare a compound for your special case, and guarantee satisfactory results.

IMPERIAL CHEMICAL CO.,

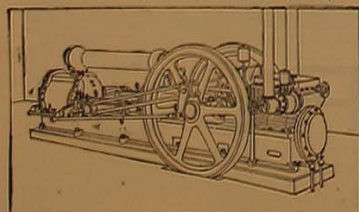
Indispensable to Mining and Mill Men

Office and Laboratory,
322 N. American Street, Philadelphia, Pa.

NORWALK IRON WORKS CO.

SOUTH NORWALK, CONNECTICUT.

THE NORWALK AIR and GAS COMPRESSOR



In use in every State in the Union, Central America, and South America, Great Britain, etc., Also used by the U. S. Army and Navy.

Especially Designed for
Driving

ROCK DRILLS,
PNEUMATIC LOCOMOTIVES,
ENGINES, PUMPS
COAL CUTTERS.

And Other Mining Machinery. The Best Machine for Compressing Air for all Dynamic Purposes. Send for Illustrated Descriptive Catalogue.

HENSHAW, BULKLEY & CO., Agents San Francisco

STEEL CASTINGS

From 1 to 40,000 pounds weight

Of Open Hearth or Chester Steel. True to Pattern, Sound, Solid. Gearing of all kinds and Crank Shafts, Shoes, Dies, Crusher Plates, Bosses, Taffets and Roll Shells. Steel Castings of every description.

Chester Steel Castings Co.,

Works Chester, Pa., Office, Library St. Phila., Pa.



Randsburg Gold Fields VIA Santa Fe Route

Leave Los Angeles, 9:50 a. m.
Leave San Bernardino 12:10 p. m.
Arrive Barstow 3:15 p. m.
Leave Barstow 3:55 p. m.
Arrive Kramer, 5:05 p. m.
Arrive St. Elmo, 6:25 p. m.
Arrive Johannesburg 8:50 p. m.

Returning Trains Leave
Johannesburg 9:00 p. m.
Arrive San Bernardino 5:35 a. m.
Arrive Los Angeles, 8:25 a. m.

A through passenger coach is run between Barstow and Johannesburg.

Through tickets and particulars of any Santa Fe Route Agent.

Stage leaves Johannesburg for Ballarat on Sundays and Thursdays at 7 a. m.; returning arrives at Johannesburg on Tuesdays and Fridays at 8 p. m.

SAN FRANCISCO OFFICE

644 MARKET ST.

LOS ANGELES OFFICE

200 S. SPRING ST.



BUFF & BERGER

Mining Transits

With patent interchangeable auxiliary. Telescope for use on top or side in vertical sighting. Our friends are cautioned against infringements foreign or domestic as attempts have been made of late to mislead the public.

SEND FOR CATALOGUE.

11 Province Court, Boston, Mass.

Mines Examined Processes Tested

HORACE F. BROWN, M. E.

PATENTEE OF
BROWN'S SYSTEM OF MECHANICAL ROASTING
FURNACES, Complete Automatic Milling
Processes, Etc.

1606-7 MANHATTAN BLD., CHICAGO

JOHN STEWART

MINING ENGINEER

Address:—Mining and Metallurgical Journal
LOS ANGELES, CAL.

Examines and Reports on Mineral Properties

Ores! Ores! Ores!!

Gold, Silver and Lead Ores and Concentrates

Purchased at Reduced Rates for Treatment.

Selby Smelting and Lead Co.

416 MONTGOMERY ST., San Francisco

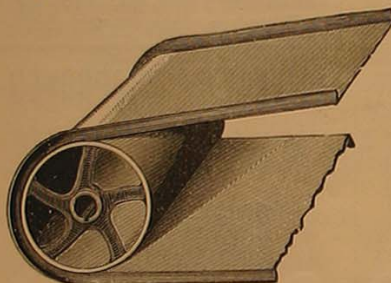
Consign Shipments to Vallejo Junction, Cal.

W. O. ABBOTT, ASSAYER

ASSAYING IN ALL ITS BRANCHES
CHEMICAL DETERMINATIONS ACCURATELY MADE

TOMBSTONE - - - ARIZONA

Spadone's Concentrator Belts Patented



This illustration shows the edge flanging outwardly as it passes over the pulley. This relieves the strain from the top and bottom of the edge by directing the strain automatically to the inside face surface of the edges. Heretofore all belts have been so constructed that when they pass over the pulleys or rolls, a direct strain comes upon the top or at the base of the edges, causing the edges to break away from the body of the belts in a very short time. We avoid this Mechanical Defect by our Spadone's Curved Edge. Belts made to fit any machine—4, 5 and 6 feet wide. Prices and samples on application.

Send us your order for Water, Air Drill, Steam, Suction and Fire HOSE, RUBBER BELTING, RUBBER PACKING and LEATHER BELTING.

The Gutta Percha Rubber and Manufacturing Company,

30 and 32 FREMONT STREET,

SAN FRANCISCO, CAL.

MATTISON & CO.

29 LIBERTY ST.,
NEW YORK CITY

BUY

ANTIMONY ORES AND

CRUDE ANTIMONY

* WRITE FOR FULL PARTICULARS

Minerals Wanted

Ores, Crystallized Specimens, Loose and detached Crystals
Wanted in Quantity

If you have any Ores, Unidentified, write me.

ROY HOPPING,

5 and 7 DEY STREET,

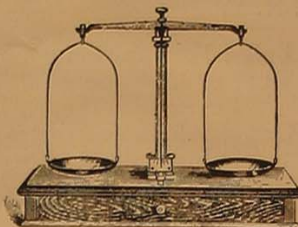
NEW YORK CITY



C. DUCOMMUN,

300-302 N. MAIN STREET,

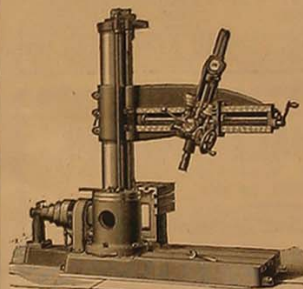
LOS ANGELES



Assayers Material Mine and Mill Supplies

Dixon's Black Lead Crucibles, Denver Fire Clay Crucibles, Muffles, Scorifiers, etc.; Quicksilver, Drill Steel, Retorts, Mortars, Gold Pans, Drilling Hammers, Drifting Picks, Horn Spoons and Shovels.

Half Universal Radial Drills



The special features which have so highly recommended this style of Drills are our double columns, steel gearing, power and hand feeds, quick return motion to spindle. Furnished in three sizes, with large variety of tables, adapting the drills for every class of work possible.

Bickford Drill and Tool Co.

CINCINNATI, OHIO, U. S. A.

HENSHAW, BULKLEY & CO., AGENTS

San Francisco, Cal.

WHITNEY COMPANY

Iron and Steel. Miners, Blacksmiths, Machinists Supplies

Agents for Arizona and New Mexico for Marsh Steam Pump, Agents Hercules High Explosives, Miner's Supplies by car load, Fairbanks-Morse Hoisting Machinery and Engines, Full line of Steam Fittings and ENGINEERS Supplies. A specialty made of Supplying the Mining Trade of the SOUTH-WEST

ALBUQUERQUE

*

*

*

NEW MEXICO

When Installing a Tramway Have the

Finlayson Patent Automatic Wire Rope Tramway

The Only Automatic
(Double rope) Tramway Built

Economy
in Operation

Simplicity in
Construction

Easy
Running

THE COLORADO IRON WORKS COMPANY,

ESTABLISHED 1860

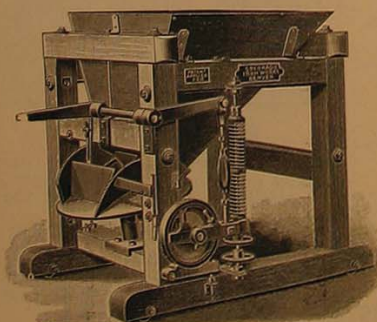
DENVER, COLORADO.

SOLE MANUFACTURERS

ENGINEERS AND MANUFACTURERS OF

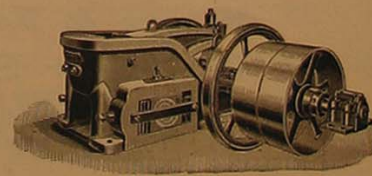
Ore Milling
and Smelting
Equipments

CATALOGUE ON APPLICATION



CHALLENGE ECLIPSE ORE FEEDER

Will feed both wet and dry ores



BLACK HAWK ORE BREAKER

A. A. BAILEY

MANUFACTURER AND DEALER OF THE LEADING

Packings and Engineers Supplies

LUBRICATING OILS AND COMPOUNDS

Exclusive Manufacturer of the **UNSURPASSED****BAILEY**

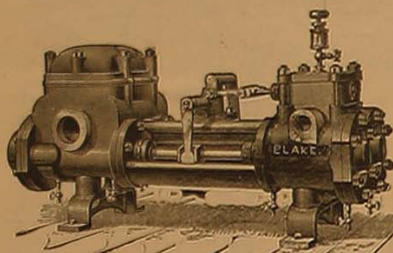
Anti-Friction Metal and all other Grades of Babbitt Metal

Sole Agents for Reliable Steam Pumps

300 South Los Angeles Street, - - - LOS ANGELES, CAL.

Geo. F. Blake Mfg. Co.

NEW YORK, N. Y.



Boiler Feed Pumps,
Tank or Light Service
Pumps,
Combined Air and Circu-
lating Pumps,
Drainage and Irrigating
Pumps,
Special Fire Pumps,
Independent Air Pumps
and Condensers
Water Works and Power Pumps.

Henshaw, Bulkey & Co., Agents. San Francisco, Cal.

"READY ROCK" ASPHALT ROOFING

THE STANDARD ROOFING OF THE UNITED STATES

Absolutely the most durable, convenient and strongest roofing material made.

"Ready Rock" Asphalt Roofing Co.

1006 North Main Street,

TELEPHONE MAIN 1675

Los Angeles, Cal.

Why SEND YOUR MONEY EAST FOR

Shoes and Dies, Camp Tappets, Car Wheels, Shafting, Hangers,
Pulleys, Ore Cars and Iron and Brass Castings, when they can
be obtained for the same price and in less than half the time

AT THE

Albuquerque Foundry and Machine Works,

Repairing of Mill and Mining Machinery a Specialty, Albuquerque, New Mexico

F. A. A. WILLIAMS, Mines & MiningA free Milling Gold Property at a bargain
Correspondence Solicited

— TRINIDAD, COLORADO

ASSAYERS AND CHEMISTSWorking tests of Ores by all processes.
Samples by mail or express solicited**TREMAINE & FROELICH,**

132 Third St., PORTLAND, OREGON

N. D. BURLINGHAM, M. E.Practical Examinations of Mines
anywhere. Plans and estimates
for Mining Machinery on
short notice.FORTY YEARS EXPERIENCE IN MINING AND MILLING
315 W. FIRST STREET, LOS ANGELES.**CHICAGO SCHOOL OF ASSAYING,**J. DUNRAVEN YOUNG, Director.
1759 MONADNOCK BLDG., CHICAGO, ILL.
Courses in Elem. Chemistry, Chemical Analy-
sis, Fire Assaying of Gold, Silver, Copper and
Lead, Ores, etc. Ore Testing, including Mill
Runs by Mercury, Cyanide and Chlorination
processes. Individual instruction only. Open
evenings. Opportunity for Miners & Prospectors.**Harper & Reynolds Co.,****MINING SUPPLIES**

— AGENTS FOR —

**Judson Dynamite and Powder Co., Galvanized Spiral
Pipe, Steel and Iron.**

152-154 North Main Street,

151-152 North Los Angeles Street,

LOS ANGELES, CAL.

**California Bellows Manufacturing Co.**
123 Beale St., San Francisco, Cal.

MANUFACTURERS OF

BLACKSMITH BELLOWS

And Bellows of Every Description

Write us for our new Catalogue

THE CHEAPEST PLACE ON EARTH

TO OUTFIT A MINE IS AT

The J. H. MONTGOMERY MACHINERY CO.,

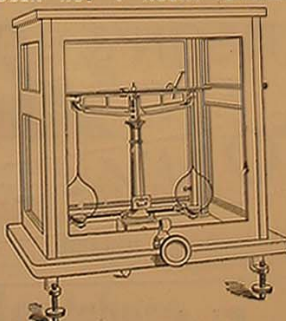
1220-22 Curtis St., Denver, Colo., U. S. A.

Just Listen—Reliable Common
Sense Steel Whim, price reduced
to \$100. Steam Hoisters, \$300 and
up; hand hoisters \$30; steel ore
buckets all prices; prospectors'
stamp mills \$300. A 10-
850 lb. stamps
high mor-
tars.

latest improved, only \$800. Ores tested and
amalgamation and concentration mills built to
fit the ore and guaranteed to save what was say.

Coal Mine equipments, Sercons,
Jigs, Tramways, Arastors, Chillian
Mills, 12x20, weight 6,000 lbs.,
price \$350; Feeders, Rock Drills
and Compressors, Pumping
Tables, Chlorination Mills, etc. Blake Crush-

ers, 7x10, weight
8,100 lbs., only \$250.
Cyanide Mills.
Our patent
Turntable Car
has equal load
on each
wheel, wears
even, dumps au-
tomatically. Our 100
page catalogue with
hundreds of useful tables,
FREE. Best Machinery and
least money for it.

QUEEN NO. 4 ASSAY BALANCE

Aluminum Beam, Agate Knives and Planes
Sensitivity 1-c. mg. The Best Low-Price Assay
Balance on the Market. Send for Circular.

QUEEN & CO.,

Optical and Scientific Instrument Works

1010 Chestnut Street,

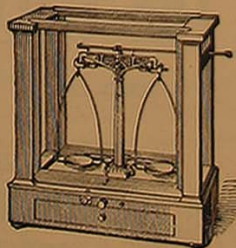
N. Y. Office, 116 Fulton St. Philadelphia

ESTABLISHED IN 1840

HENRY TROEMNER,

710 Market St.,

Philadelphia, Pa.

**Assay Balances and Weights**in use in all the U. S. Assay Offices
in America

PRICE LIST ON APPLICATION.

JEFFREY

Roller, Steel and Special Chains.

ELEVATORS

JEFFREY

—AND—

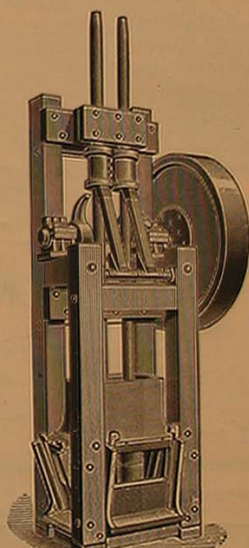
CONVEYORS

FOR HANDLING MATERIAL OF ALL KINDS.

WIRE CABLE
CONVEYORS.
For long and
short distance
conveying.

THE JEFFREY MFG. CO. 41 DEY STREET,
Columbus, Ohio. NEW YORK.

Send for Catalogue.

"HENDY" IMPROVED**Triple Discharge Two-Stamp**— **MILL** —

Capacity six to ten tons per day

PRICE, \$450.00

JOSHUA HENDY MACHINE WORKS

38 to 44 Fremont St., San Francisco, Cal.

ROGERS & BALDWIN,**MACHINE SHOPS**All kinds of repairing
for Engines, Boilers
and Machinery

Riverside, Cal.

ANTIMONY.

We buy Antimony Ore in any quan-
tity and pay prompt CASH for same.
Write us and let us know what you
have.

Chapman Smelting Works Co.,
(INCORPORATED)

224 Battery Street. San Francisco, Cal.

J. B. Pope

U. S. Mineral Surveyor,

SAN BERNARDINO, CAL.



Quartz Screens
A specialty. Round, slot or buried slot holes. Genuine Russia Iron, Homogeneous Steel, Cast Steel or American planished Iron, Zinc, Copper or Brass Screens for all purposes. CALIFORNIA PERFORATING SCREEN CO., 145-147 Beale St. S.F.

**E. C. WOODWARD,
Assayer and Chemist**

Telephone 315

24 E. Kiowa St., Colo. Springs, Colo.

KLONDIKE

WANTED—Men and Women to know the cheapest, easiest and best route to KLONDIKE. How to go and make expenses on the way. Circular free for stamp. Agents wanted for steam line.
G. W. McCOY,
103 1/2 First St., Portland, Or.

Pacific Coast and Mexican Agents

— FOR —

Kearby & Mattison's



ALL KINDS OF ASBESTOS GOODS

DE SOLLA DEUSSING COMPANY,

**Magnesia Sectional
Steam Pipe and Boiler
Covering**

The only Covering that water will not destroy. Indispensable in covering pipes conducting steam to pumps in mines.

Send for Testimonials.

4 California Street, San Francisco, Cal.

**EDWARD B. READ,
Engineers' Specialties, Cylinder and Machinery Oils, Cylinder Lubricators,**

LORD'S BOILER COMPOUND, Cyclone Steam Flue Cleaner, Engine Compound Electric Spiral Packing, Shafting Compound, Crank Pin Grease, Wire Rope Grease, Extra Gear Grease, Belt Grease and Oil, Skin Grease, Elevator Grease, Crescent Flue Scraper, Oil Cups, Compound Cups, Dibble Lubricator, Packing and engineers' supplies.

CORUNDUM WHEELS.

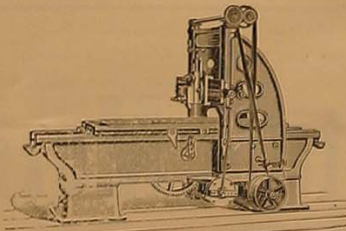
No. 12 First Street,

San Francisco, Cal.

NEW HAVEN MFG. COMPANY

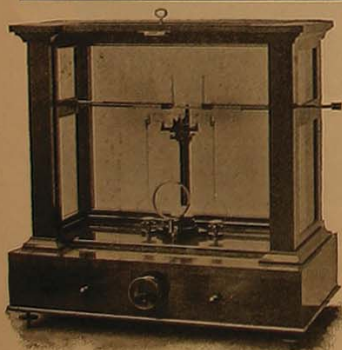
NEW HAVEN, CONN.

**IRON
WORKING
TOOLS,**



Engine Lathes, Pulley Turning Lathes, Iron Planers, Slotters, Upright Drilling Machines, Horizontal Drilling and Boring Machines, Etc.

HENSHAW, BULKLEY & CO., Agents, San Francisco, Cal.



**SMITH & THOMPSON
Manufacturers of
Fine Assay Balances**

Write for Catalogue

2219 Stout street Denver, Colo.

Advertise in ...

... The Journal

The Giant Powder Company

+ CONSOLIDATED +

Principal Office: 430 California Street
SAN FRANCISCO, CAL.

*
P. J. NOLAN, General Agent for Mexico
Apartado 230 CITY OF MEXICO.

*
A. A. SPARKS,
Resident Agent Southern California.
Room 438 Bradbury Block, LOS ANGELES, CAL.

*
AGENTS

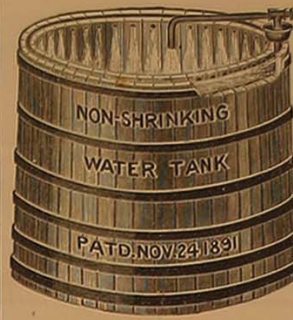
Roy & Titcomb, Nogales, Arizona
Samuel Hill, Prescott, Arizona
Kellner's Store, Phoenix, Arizona
Thomas Wilson, Tucson, Arizona

A. Calderon, Hermosillo, Mexico
G. Moller & Co., Guaymas, Mexico
Wohler Bartling & Co., Mazatlan, Mex.
Delius & Co., San Blas, Mexico

Julio Hilderbrand & Co. Durango, Mexico
Julio Hilderbrand & Co., Tofia, Mexico

J. P. De Fresno, Culiacan, Mexico
T. Robison Bours, Alamos, Mexico

Manufactures Dynamite, Black Blasting and Sporting Powders.



TANKS

OF EVERY DESCRIPTION

— FOR —

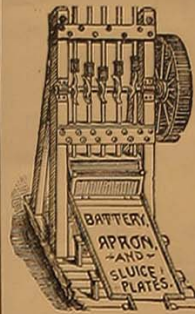
**Mines, Mills and Cyanide Plants
Patent Non-Shrinking Water Tanks**

The only Tank that will stand the Desert and Hot Climate.

Write for Catalogue and Estimate on any kind of Tank Work.

Pacific Tank Co.

33 BEALE ST., SAN FRANCISCO
348 EAST 2d STREET, LOS ANGELES



To Gold Miners!

Silver Plated Copper AMALGAMATING PLATES

For Saving Gold In Quartz and Placer Mining.

EVERY DESCRIPTION OF MINING PLATES MADE.

Only Best Copper and Refined Silver Used. Old Mining Plates Replated. Twenty-six Medals Awarded. Gold, Silver, Nickel, Copper & Brass Plating.

Denniston's San Francisco Plating Works

653 and 655 Mission Street, San Francisco, Cal.

— Telephone, Main 5931. —

E. G. DENNISTON,

Proprietor

Send for Circular.

Foos Gasoline and Distillate Engine

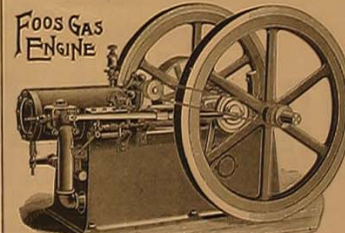
The Best in the Market

Ten Engines lately put in the Rand District operating Hoists, Mills and Pumps. We have sold 300 of these engines and we warrant them satisfactory. The Triumph Pump for deep wells throws a steady stream. No cranks or dead centers. The rods more vertically require less power than other pumps.

Studebaker Vehicles,
Machinery, Engines

S. W. LUITWEILER CO.

200-202 N. LOS ANGELES ST.
LOS ANGELES, CAL.



ESTABLISHED 1859

Herman Kohlbusch Sr.

59 Nassau Street,
New York, N. Y.

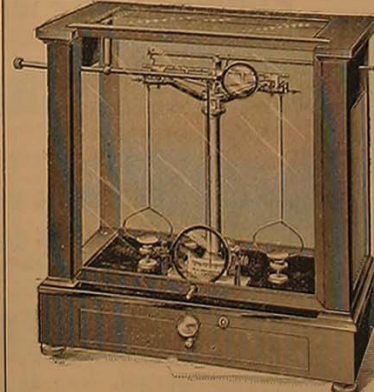
MANUFACTURER OF

**Fine Balances
and Weights**

For every purpose where accuracy is required.

...

Send for Illustrated Catalogue



THE WILSON

Forged High Grade Steel

Shoes and Dies

Guaranteed to Wear Longer and Prove Cheaper than any others. Made by use of Special Appliances. Patented Aug. 16th, 1892.

— Made only by —

WESTERN FORGE AND ROLLING MILLS
St. Louis, Missouri

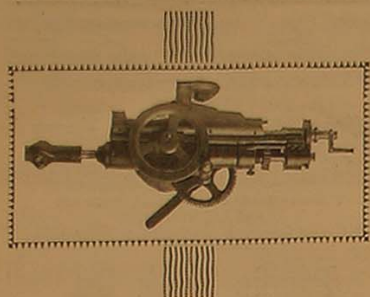
JOSHUA HENDY MACHINE WORKS

SOLE AGENTS

38 to 44 Fremont Street,

San Francisco, Cal.





The JACKSON Hand Power Rock DRILL

NO JAR

EASILY OPERATED

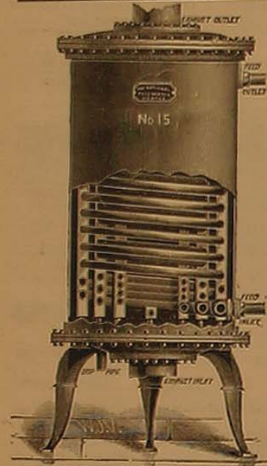
We also deal in General Mining Machinery and Supplies

The Jackson Drill and Manufacturing Co.
N. Y. OFFICE,
120 Liberty StreetExhibition Rooms,
1709 California St.,

DENVER, COLORADO,

BOX
1352Offices
1757 Larimer St.

CABLE ADDRESS: "Jack Drill," New York, A. B. C. Code 4th Edition and Lieber.



The National Feed Water Heater

Highest Premium at World's Fair

800,000 HORSE POWER IN USE

 SIMPLICITY
 CHEAPNESS
 RELIABILITY
 EFFECTIVENESS

Henshaw, Bulkley & Co.,

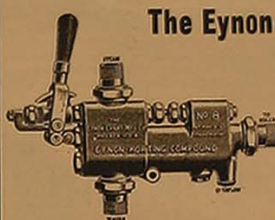
Agents,

SAN FRANCISCO, CAL.

P. & B. PAINT

FOR MINES, SMELTERS, CHLORINATION WORKS,
THE CYANIDE PROCESS.P. & B. Roofing put up in Rolls to lay 200 square feet, with Paint and Nails.
Absolutely Acid and Alkali Proof.

PARAFFINE PAINT CO., Manufacturers, 312-314 W. 5th St., Los Angeles



The Eynon-Korting Compound Injector

The Best for
Quartz Mill
and Smelter
Boilers

Brass, Bronze and Copper Castings of every description.

Send for Catalogue of the
Injectors, Condensers, Blowers, Ventilators, Blast Nozzles,
Syphons, Exhausters, Etc.

THE EYNON-EVANS MFG CO.,

15th and Clearfield Streets,

PHILADELPHIA, PA.

E. C. CREEL, Presidente.

JUAN A. CREEL, Gerente

Compania Industrial Mexicana

Ferreria

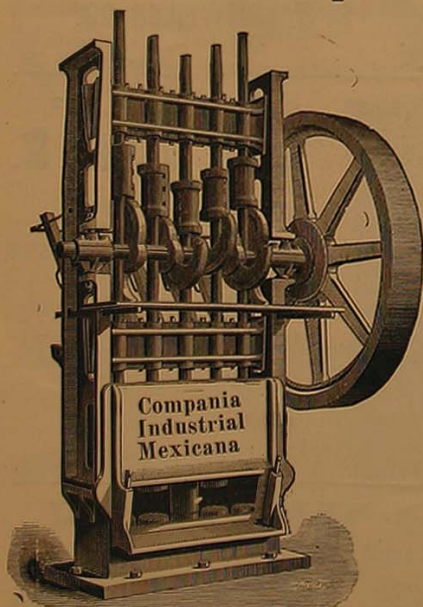
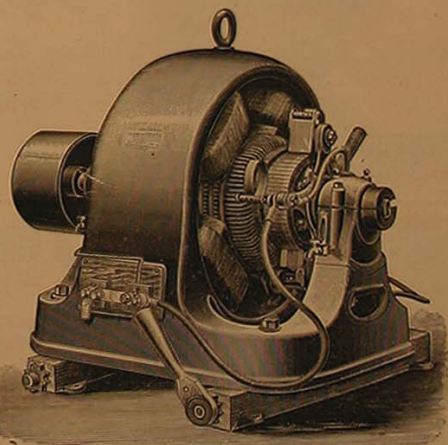
Fundicion de Fierro y Bronce

Fabricantes...

de toda clase de

**Maquinaria para minas y
Haciendas de Beneficio**

Quebradoras Maquinas de vapor.

Retortas, Ruedas Hidraulicas, Calderas
de todas clases, Maquinas de extraction. Car-
ros para mineral, Molinos Huntington. Bombas
Malacates de Vapor panes de amalgamacion.
Concentradoras, compresores de aire. Lavaderos,
Haciendas de Lixiviacion; Hornos de chaqueta
["Water Jackets."]Compania
Industrial
Mexicana
**Dinamos, Motores y Material
Electrico.**

BARATURA y PRONTITUD.

Se envian circulares Pedido.

Para informes dirigirse al gerente,

Se solicita la correspondencia.

Chihuahua,

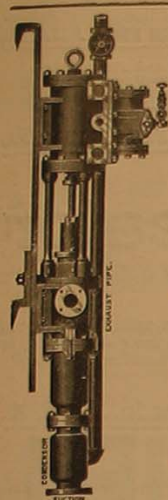
=

=

=

Mexico

JUAN A. CREEL,



W. T. GARRATT & CO. Brass Machine Works.

MANUFACTURERS

HOOKER STEAM PUMPS,
MINERS' SINKING PUMPS,
TRIPLE PLUNGER PUMPS,
JACKHEAD MINING PUMPS,
CENTRIFUGAL PUMPS,
GONGS FOR MINE SIGNALS,
LUBRICATORS & OILERS,
SUCTION HOSE AND COUPLINGS,
HYDRAULIC PIPES,
IRON PIPE AND FITTINGS
BABBITT METALS,
PACKINGS
REPAIRING PROMPTLY ATTENDED TO.

138 to 148 Fremont Street,
SAN FRANCISCO, CAL.



MINERS' OUTFITS.

IRON MORTARS,
AMALGAM MORTARS,
GOLD WASH PANS,
MINERS' HORNS,
BATEAS, CRUCIBLES,
HORSE-SHOE MAGNETS,
MAGNIFYING GLASSES,
IRON RETORTS,
CHEMICALS, SCALES,
WEIGHTS, ETC.

Including a full as-
sortment of Mine and
Mill Supplies, Assay-
ers' Materials, Etc.

Sole Agents for the
Pacific Coast for the

W. S. TYLER WIRE WORKS CO.

Manufacturers of
Steel and Brass Wire Battery Screens.
Agents for Baker & Adamson's Chemically
Pure Acids. A full stock always
on hand.

Nitric Acid, sp. gr. 1.42; Muriatic Acid, sp. gr.
1.20; Sulphuric Acid, sp. gr. 1.845.

JOHN TAYLOR & CO.

83 FIRST ST., SAN FRANCISCO

Prices on application.

The State Ore Sampling Co.

DENVER, COLORADO.

Gold, Silver, Lead and Copper Ores and Matte
sampled and marketed to the best advantage.
With modern mills and machinery our facilities
for sampling ores are the best.

Our long experience in the market enables us
to obtain the highest prices for all marketable
ore. Write for our "Reference Book." Send
analysis of your ore for prices and information.

BAILY & MONNIG, Managers.

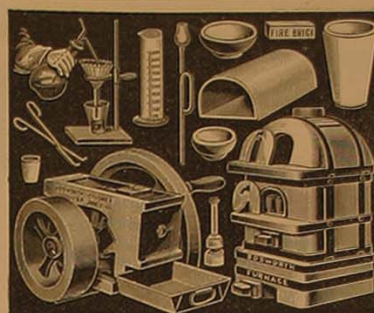
Silver City Reduction Company

This plant has been purchased and will be
operated in the future by the Estate of the late
Senator George Hearst of California, under the
general management of D. B. Gillette, Jr.

It is the intention of the present management
to largely increase the capacity of the plant and
equip it with every modern appliance for the
successful and cheap treatment of ores and con-
centrates.

Consignments and Correspondence Solicited.
Advances will be made on ores.

Silver City, Grant Co. New Mexico



FACTORY:

3101-3141 Blake St., 1742-1746 Champa St., Denver, Col.

Analytical Chemists and Assayers

Analysis made of ORES, Waters,
Chemicals, Clays, &c. Umpire
Work a Specialty

HAMLIN & MORRISON,
144 Chestnut Street, PHILADELPHIA, PA.

TIMOTHY W. SPRAGUE, S. B.

WITH

CHARLES HENRY DAVIS, C. E.

CONSULTING ENGINEERS

99 CEDAR ST., NEW YORK 4 STATE ST., BOSTON
DREXEL BLDG., PHILADELPHIA

Electric Transmission of Power and Mine
Equipments

FAUTH & COMPANY,

(G. N. SAEGMULLER),

Engineering and Mining Instruments,
WASHINGTON, D. C.

Attention is called to our newly improved
Mining Transit, with best Solar Attachment
and Vertical Sighting Telescope and Quick
Leveling Head.

This Cut Illustrates Our
4 H.P. to 8 H.P.

Hoisting Plant

We also build larger sizes to suit
the demands of our
customers.

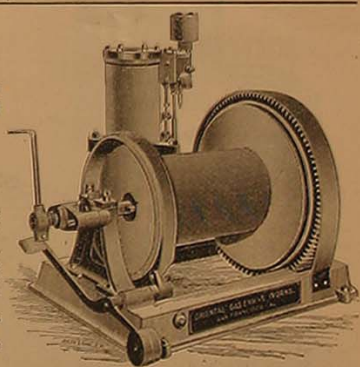
The Hoist illustrated is designed to lift 1,000
pounds 120 feet per minute with the smaller
sized engine.

It is strong and exceedingly simple and dur-
able, being entirely under the control of the
operator, by the use of a single hand lever for
hoisting, while the lowering is governed by a foot
lever and brake.

No better device has been designed for this
purpose.
For prices and further information address the
builders.

ORIENTAL GAS ENGINE CO.

105 Beale Street, San Francisco, Cal., U.S.A.



THE Denver Fire Clay Co

Assayers' and Chemists' Supplies

MANUFACTURERS OF

Crucibles, Scorifiers & Muffles
And all other kinds of

Fire Clay Material.

SPECIALTIES—Strictly c. p. Acids
Test Lead, Bone Ash, Cyanide
Potash, Argol, Borax, Borax Glass
Iron Sulphides, Litharge, Soda
Mining Fluxes, etc.

Sole Agents for the
Ainsworth Balances

OFFICE:

HENRY RIVES ELLIS

Mining Engineer and Metallurgist

Ores Sampled, Assayed and Analyzed. Practice
working tests by Stamp, Pan and
all Processes.

Assay Office and Metallurgical Works,

318 PINE STREET, SAN FRANCISCO, CAL.

CLARENCE HERSEY, Assayer and Chemist,

(Established 1879)

LEADVILLE, COLORADO

Samples by Mail or Express Re-
ceive Prompt Attention

SPECIMEN ASSAY PRICES:

Gold silver and lead, \$1.00; any two of the
above, 75c; any one of above, 50c; copper analy-
sis, 3c; platinum, nickel or tin, \$5.00.

Write for full price list and mailing envelopes



FULTON ENGINE WORKS

Mining, Milling and Smelting Machinery

Estimates Furnished on all Classes of Mining Work

P. O. Box 296, STATION "C"

LOS ANGELES, CALIFORNIA

WHITE, ROGERS & COM'Y.

CONSTRUCTING ENGINEERS AND MILLWRIGHTS

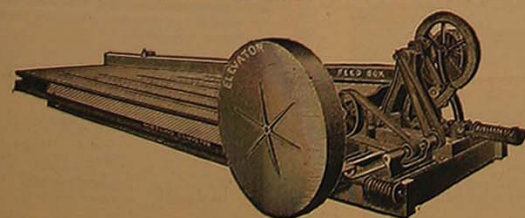
308 PINE STREET, SAN FRANCISCO, CAL.

Sole Pacific Coast Agents and Builders of the Celebrated

WILFLEY CONCENTRATOR,

Price \$450 f.o.b. San Francisco

One of these Machines will take the place of TWO or THREE Belt Concentrators of any make and do very much better work.



WILFLEY CONCENTRATOR

We furnish superior Machinery and erect Stamp Mills, Hoisting and Pumping Works
operated by Steam or Water Motors. Complete Concentrating and Smelting Plants for the
concentration and recovery of gold, silver, copper and lead. Improved Power Drills and Air
Compressors, Wire Rope Tramways, etc.

The Wilfley Table is fully covered by U. S. Patents Nos. 580,338 and 590,675.
Infringements will be prosecuted to the full extent of the law.

These Machines are Kept in Stock Ready for Immediate Shipment

Chicago and Aurora Smelting and Refining Co.

PURCHASERS OF **Lead, Silver and Gold Ores** — **Manufacturers of BLUE VITRIOL**
 Works at Leadville, Colo., Aurora, Ill., and Chicago, Ill.
 General Office, Woman's Temple, Chicago, Illinois

GOLD and SILVER REFINERS & ASSAYERS

Bullion Bought. No charges for parting: Gold \$20.30 per oz., Silver and Platinum at market prices. Assaying in all branches. Working tests made by all processes. Wastes and Concentrates bought. Prompt attention. Best Services.
 Your Trade Solicited

PENN SMELTING AND REFINING WORKS, 901-903 Filbert St., PHILADELPHIA, PA.

"Keep Your Eye on the Indicator"

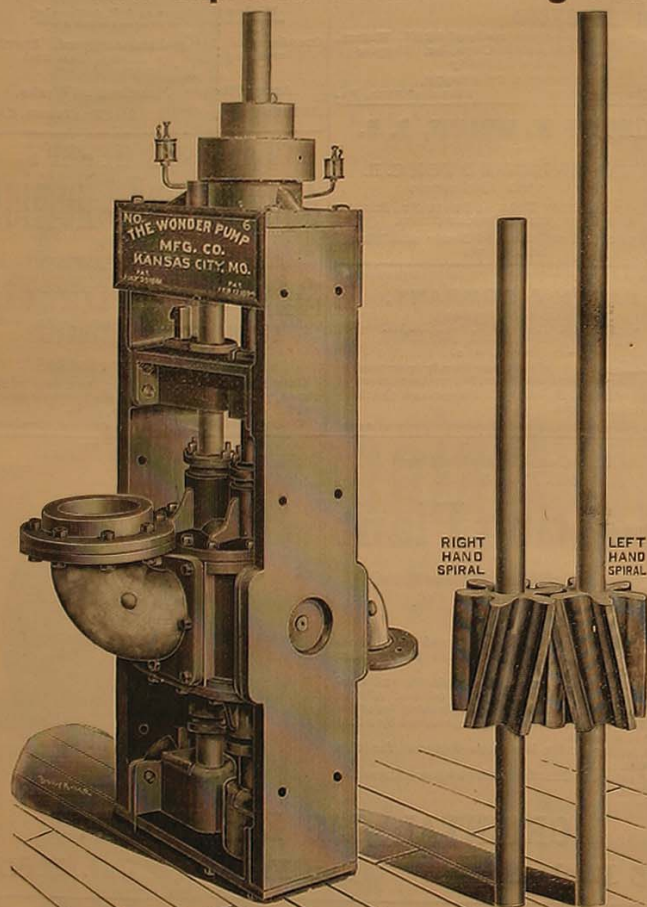
The Bolthoff Signal Alarm Indicator

Hundreds Now In Use. Universally Recommended.

It is without question the most accurate indicator for hoisting engines ever constructed. Not only is there no lost motion, but it has the valuable feature of a device whereby automatically the approach to station, curves in the shaft, bad places, or obstructions, or, in fact, if for any reason the engineer desires to be warned of the approach of the cage or bucket to any particular point in his shaft, either in hoisting or lowering, he can set it so that the signal bell will automatically sound its alarm.

HENDRIE & BOLTHOFF M'F'G. & SUPPLY CO.,

Denver Colorado, U. S. A.

The New Improved Wonder Mining Pump

The only Mining Pump made that will work from pump to pump on the one discharge pipe, doing away with all reservoirs. Write

The Wonder Pump Manufacturing Co.,

ARMOUR BLDG., KANSAS CITY, MO., for catalogue

Stockton Assay Office

Gold and Silver Assays, \$2.00.
 Five Assays and over, \$1.50 each

329 E. Magnolia street, Stockton, Cal.

Send Samples and remittances by Express or mail.

Third Edition Revised and Enlarged.

Prospector's Field Booke and Guide

In the search for and the easy determination of another useful minerals, by H. S. Osborn, of 58 engravings 274 pages, by mail \$1.50. Catalogue M, Mining, Assaying, etc., sent free.
PHILADELPHIA BOOK CO.

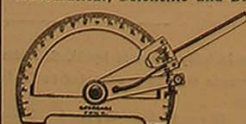
15 S. Ninth Street,

Philadelphia, Pa.

EAGLE PACKING

Also White Eagle, Graphite, Hydraulic, Nitr and other brands for all purposes for which packing is used. Write for samples and prices. Manufactured by **James Glandling Co.,** 1907-9 North 6th St., PHILADELPHIA, PA.

Mathematical, Scientific and Drawing Instruments
 Boxwood Scales. All kinds of repairing promptly executed.
GUIDO FERRARI
 S. E. Cor. 7th & Chestnut Sts., Philadelphia, Pa.

**Turbine AND Cascade WATER WHEEL**

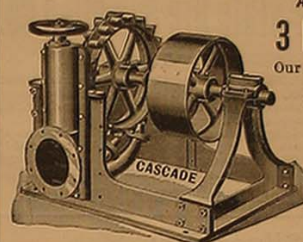
Adapted to all Heads from

3 Feet to 2000 Feet

Our experience of 33 YEARS building Water Wheels enables us to suit every requirement of Water Power Plants. We guarantee satisfaction.

Send for a Pamphlet of either Wheel and write full particulars.

James Leffel & Co.
 SPRINGFIELD, OHIO, U.S.A.



\$35,000,000 in Dividends paid out by Utah Mines up to date.

UTAH MINING STOCKS

Weekly Market Report on application. Quotations by wire or mail.
 Reference: Any Bank in Salt Lake City.

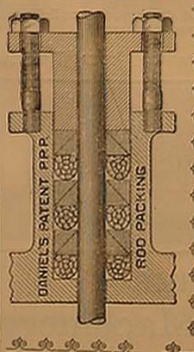
P. J. CONWAY & CO.,

SALT LAKE CITY, UTAH

DANIEL'S PATENT P.P.P. Diagonal Rod Packing

For Steam, Water, Oil, Air, Ammonia, Etc.

SAVES LABOR
 SAVES POWER
 SAVES MONEY



It Represents Highest Class Materials and Greatest Service.

**NO PAY IF NOT AS CLAIMED**

SLIDING WEDGES, COMPENSATING FOR WEAR. OIL CUSHION TO ENAMEL AND LUBRICATE THE ROD.

Best Packing for use in MILLS, MINES and SMELTERS

MANUFACTURED ONLY BY

C. A. DANIEL, Philadelphia, Pa.

To insure getting the Genuine see that Every Box and Wrapper has our Trade Mark.

THOMAS PRICE & SON

Analytical Metallurgical and Physical Testing Laboratory

524 SACRAMENTO STREET, SAN FRANCISCO, CAL.

N. OHLANDT & CO.

MANUFACTURERS OF

Best Quality of BONE ASH for Assayers.

Our Goods are used in all parts of the United States and Mexico.

EXTRA No. 1 and No. 2

CORRESPONDENCE SOLICITED

327 MARKET STREET, SAN FRANCISCO, CAL.

Miners Attention!

We Sell Powder, Caps, and Fuse, **Mining Machinery**, Belting, Asbestos Goods, packing of all kinds, Picks and Shovels, Iron and Steel; Iron Wheelbarrows, Ore Sacks, Tents, Portable Forges and General Mining Supplies. Agency Truax Mfg. Co and Studabaker Wagons.

WILCOX & ROSE CO.,

San Bernardino, Cal.

**Engineers' and Draughtsmen's Supplies**

Sole agents for Riefler's round system drawing instruments and Albert Ott's Planimeters, Planigraphs and other instruments of precision. Levels and transits of superior make.

F. WEBER & CO.,
PHILADELPHIA

Subscribe for

the Journal

**Pueblo Foundry,
Machine Shops and
Boiler Works**

— MANUFACTURERS OF —

Wrought and Cast Iron, Water Jacket Furnaces, MINING and Irrigation Pumps, Engines, Boilers, Hoisters, Tanks, Derricks, MINING MACHINERY, Brass Castings; light and heavy Forging. New and Second-hand Engines. Boilers and pumps always on hand.

PUEBLO, COLORADO.

The Machinery and Electrical Company,**Machinery and Supplies**

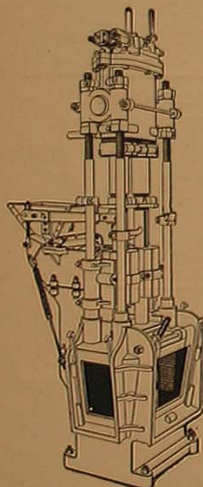
MINING HOISTS, WHIMS, ORE BUCKETS,
Bates Corliss Engines, Snow Steam Pumps
OIL CITY BOILERS AND ENGINES,
Hercules Gas Engines, Lawrence Centrifugal Pumps
GATES IRON WORKS MINING MACHINERY
Tremaine Steam Stamp Mills
Electric Lighting, Railway and Transmission Apparatus
Washburn & Moen Mfg. Co's Wires and Cables

Also Dealers and Jobbers in

Shafting, Belting, Dodge Wood Pulleys, Hangers,
Boxes, Etc.

WRITE FOR PRICES

351 and 353 N. Main St. Los Angeles, Cal.



TREMACHINE STAMP

**HALLIDIE
PATENT
ROPEWAY**

— FOR THE —

Transportation of Ore, Fuel and other material, has been erected by us all over the country and is the most economical and efficient method known. Nothing to get out of order; has always given satisfaction.

California Wire Works

(LICENCES)

Office, 330 Market St. San Francisco, Cal



Mention the Journal

EASTERN PRICES BEATEN IMPROVED FACILITIES, FINEST WORK
LOWEST PRICES**PERFORATED SHEET METALS**

For Flour and Rice Mills, Grain Separators, Shaker Screens, Gravel and Cement, Revolving and Shot Screens, Stamp Batteries, Iron, Steel, Russia Iron, American Planish, Zinc, Copper and Brass Screens for all uses. Inventor and Manufacturer of the celebrated Slot Buried and Diagonal Slot punched Screens.

MINING SCREENS A SPECIALTY

Mill owners using screens extensively, can contract for large supplies at favorable rates. J. W. QUICK is the only competent and successful manufacturer of Screens on the Coast, having furnished Screens to the Principal Mills of

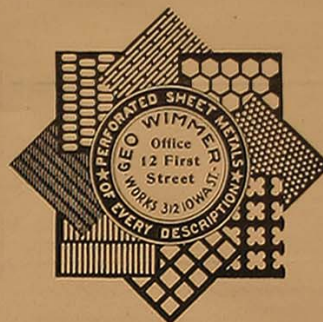
California, Nevada, Alaska, Mexico, Arizona, Central America, Australia and British Possessions.

San Francisco Pioneer Screen Works

(Established 1860)

221 and 223 FIRST STREET, SAN FRANCISCO.

J. W. QUICK, Prop.



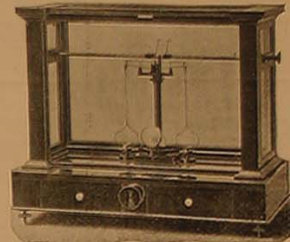
MANUFACTURER AND DEALER IN

Perforated Sheet Metals,

Steel, Russian Iron, American Planish
Zinc, Brass and Copper.

Mining Screens of Every Description

SAN FRANCISCO, CAL.

**AINSWORTH NO. 1**

SENSIBLE TO 1-200 MILLIGRAMME

This is a short beam balance and especially adapted for smelters and assay offices where extreme accuracy and rapidity are requisites.

Complete catalogue of Assayers' and Chemists' supplies, including this and other balances, mailed upon application. SELLING AGENTS,

The Denver Fire Clay Co.,

1742-1746 Champa St., Denver, Colo.
P. O. BOX, 1540

The Kootenai Gold Mining District

of British Columbia, which of late has been attracting considerable attention, is best reached by the Oregon Railroad and Navigation Co. The fact has recently been brought out that the Kootenai district contains within its borders more *High Grade Silver and Lead Mines* than any other part of the world. The recent discoveries of *Rich Gold Lodes* makes it the most attractive country for the *Capitalist Miner and Prospector* to visit in search of mines.

The Oregon Railroad and Navigation Co.

Dispatch Fast Steamers every Four Days

from San Francisco connecting at Portland, Oregon with their rail line for all points in this famous district. For full particulars address,

E. C. WARD, GENERAL AGENT.

630 Market Street,

SAN FRANCISCO, CAL.

**WIRE
TRAMWAYS**

Ropeways,

* Incline Planes,
and Railways.

Hoisting Apparatus, Patent Grip Pulleys, Transmission of Power by Wire Ropes; 25 years experience; Send for Ropeway Pamphlet.

Pacific Coast Agents for

The Calhoun Excavator

A combined power Shovel and Cableway for excavating and handling earth or loose rock.

SEND FOR DESCRIPTIVE CIRCULARS

Head and Shoulders Above 'em all!

If you want to get the miners' trade just ask him for it, through the columns of

The Mining and Metallurgical Journal

which as a business getter is head and shoulders above 'em all.

Offices:

Stimson Block, Los Angeles, Cal.
64-65 Merchants' Exchange,
San Francisco, Cal.

HOME MANUFACTURE FOWLER'S

Fossil Asbestos Manufacturing Co.,
Sectional Removable Covering
for Steam Boilers, Pipes, etc.
As a Non-Conductor, Unequaled
Absolutely Fire Proof

O. C. FOWLER, 656-58 Howard Street,
San Francisco, Cal.



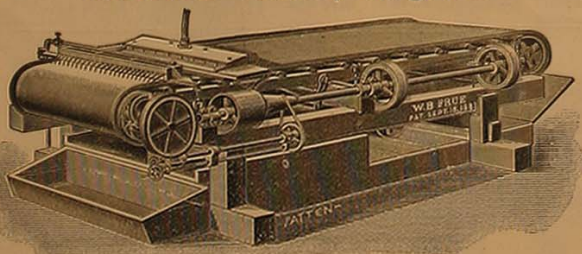
HOFF ASBESTOS MFG. CO., Bryson Block,
Los Angeles, Cal., Agent for Southern Cal.

H. P. G. COATES, MINING AND DIVIDEND PAYING STOCKS,

Reliable Information on Application
SALT LAKE CITY, UTAH

FOUR and SIX FOOT FRUE VANNERS

With Brownell "Patent Lip" Flange Belts



After a Concentrator like the Frue Vanner has been on the market nearly two decades, and the sales have constantly increased, it is safe to say it is the "Standard Machine of the world." More Frue Vanners have been sold during the last twelve months than for the same period at any time during the history of the machine. Practical mining men in all parts of the world where mining is carried on will testify as to its merits. It is the "Standard" which all competitors are trying to imitate.

The results obtained by this machine are the "Acme" of concentration, and several cheap and untried machines that have lately come on the market compare by it, and the manufacturers will tell you that they are "just as good, and cheaper, etc." The facts are that no other concentrator made has an equal capacity, or will yield as clean a concentrate with as small loss in the tailings as the Frue Vanner. The amount saved from the lower first cost of an inferior machine counts little in the years results, when compared with the increased output from a Frue. This machine not only gives better results at both ends of the belt (i. e. Clean product and poor tailings), but is operated at less expense and requires less attention than any other machine on the market. At the Alaska Treadwell Mine where they have ordered over 350 Frue Vanners one man attends 48 machines for 12 hour shift.

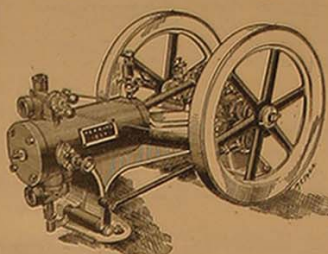
FOR DESCRIPTIVE PAMPHLETS, ADDRESS

JAMES S. BROWNELL, Western Agent
132 Market Street.

FRUE VANNING MACHINE CO.

(Successor to Adams & Carter)
SAN FRANCISCO, CAL.

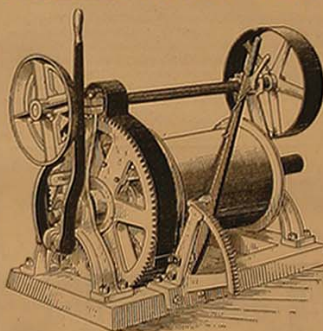
PERKINS Gas Engine



MODEL OF 1897

Composed of Sixteen parts, constructed so plain and substantial that it may be taken to the desert mines without fear of unreliable operations, uses Storage and Dynamo for sparking, the cooling jacket water is used over. Uses about 8-10 of a gallon of gasoline for each horse power for a twelve-hour run. Ten horse power engine weighs 2250 lbs. boxed for shipment.

Perkins Power Hoist



Is light and portable weighing 1050 lbs., heaviest piece weighs 150 lbs., capacity 1000 lbs. one hundred foot per minute, will lift 400 feet. A Safety latch follows every foot of the lift, guaranteeing absolute safety.

PRICE \$125.00

For full particulars, apply to

Perkins Pump and Engine Co.

1023 N. Los Angeles St., Los Angeles

DR. W. F. DRAKE, E.M.

Mines and Mining

Reports and Examines Mines. Years of practical experience. Correspondence solicited

P. O. BOX 380

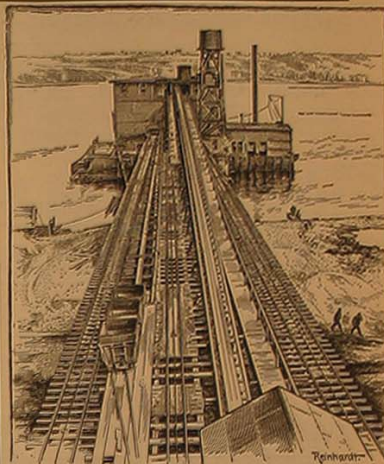
SONORA, Tuolumne County, Cal.

SIMONDS & WAINWRIGHT,

Chemical and Mining Engineers and Analysts

Working tests of Ores by all Processes. Experimental Work on Chemical and Metallurgical Processes. Instructions in Assaying and Chemistry.

No. 20 Platt Street New York



FOR conveying Ore, Coal,
Slag and Matte. Send
full particulars of your
wants in writing for prices.

Robins Conveying Belt Co.,
147-149 CEDAR STREET, NEW YORK

JOHN T. REED

Assayer and
Analytical Chemist

Assays made for all valuable metals. Analysis made of all valuable minerals. Special attention given to the sampling of mines. Estimating the value of and testing the nature of their ores. 100 pound lots of ore sampled, and working tests made by Cyanide, Amalgamation and Chlorination Processes.

OFFICE 522 COURT STREET,

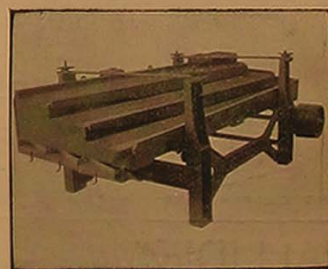
San Bernardino, California

E. E. BURLINGAME'S

ASSAY OFFICE

Established in Colorado, 1866. Samples by mail or express will receive prompt and careful attention. Gold and Silver Bullion refined, melted and assayed, or purchased.

Address 1736 and 1738 Lawrence St., Denver, Col.



The Bartlett Concentrating Table

Capacity 10 to 30 tons daily; size 4x8 feet; weight 800 lbs. Clean separation of all minerals without sizing. Price \$250. Send for description.

American Zinc Lead Co.,
CANON CITY, COLO.

Buyers of

ALL CLASSES OF

BULLION MATTE,
ORE and MILL
PRODUCTS
GOLD and SILVER
BARS

CONSOLIDATED Kansas City Smelting AND Refining COMPANY

SMELTING WORKS
LEADVILLE, COLO.; EL PASO, TEXAS;
ARGENTINE, KAN.; BOQUILLAS, MEX.

REFINERY:
ARGENTINE, KANSAS;

OUR PURCHASING AGENCIES:
C. D. Porter, Spokane, Wash.; J. H. Weddle, Denver
J. E. Jackson, Salt Lake City, Utah; H. R. Simpson,
El Paso Texas; C. E. Finney, Argentine, Kansas.

Manufacturers of

Alchemist-Brand
Blue Vitrol

Zinc Sulphates

THE PUEBLO Smelting and Refining Company,

PUEBLO, COLORADO.

BUYERS OF
Gold, Silver, Lead and Copper Ores,
Copper Matte and Bullion.

Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.



CHAS. B. BOOTHE & CO.

MINING AND MILLING MACHINERY AND SUPPLIES,

Hoists, Horse Whims, Buckets, Wire Rope, Ore Cars

129 SOUTH LOS ANGELES STREET,

LOS ANGELES, CAL

FRANK H. HOWE,

MECHANICAL ENGINEER

Boilers, Engines, Pumps, Complete Steam and Oil Burning Plants

Mill and Mining Machinery

203 North Main Street, Los Angeles, Cal.

RISDON IRON WORKS,

SAN FRANCISCO, CALIFORNIA

Cable Risdon's, Code—A. B. C. & Leibers

MANUFACTURERS OF

GOLD DREDGING MACHINERY AND COMPLETE EQUIPMENT for Placer Mines, OUR SPECIALTY.

We build Gold Dredges Complete in Running Order to handle 2,500 cubic yards per day at a cost of 3 cents per cubic yard.

We excavate 50 feet below water, 20 feet above water and handle boulders up to one ton weight. Send for Dredging Catalogues Nos. 15 and 16.

We also build all kinds of Mining, Milling Concentrating, Pumping, Air Compressing, Hydraulic, Water Wheel and Hoisting Machinery.

EVANS' HYDRAULIC GRAVEL ELEVATORS.

We publish 16 Catalogues. Write for one in the line you are interested in.



The Mining & Metallurgical Journal



Has its Offices { STIMSON BLOCK, LOS ANGELES, CAL., and
64-65 MERCHANTS' EXCHANGE, SAN FRANCISCO, CAL.

Write for Advertising Rates

Do you Want MINING AND MILLING MACHINERY and do you want QUICKLY to get it

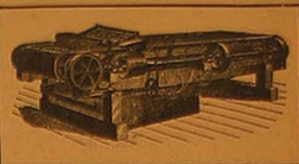
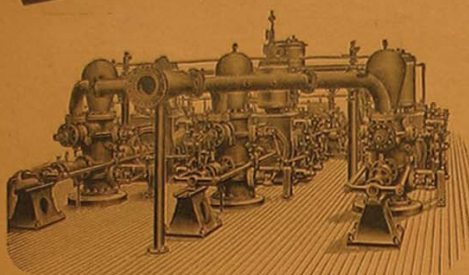
If You Do, Address

Fraser & Chalmers, 133 FULTON STREET, CHICAGO

whose works are exclusively devoted to and adapted for the manufacture of Mining and Ore Reducing Machinery.
During the month of January, 1898, Fraser and Chalmers' Chicago Works received orders for Mills amounting to a total of

Eight Hundred and Fifteen [815] Stamps

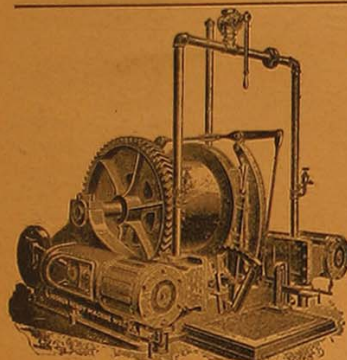
and it is significant of their resources that even with this great amount of work in hand, they are still in position to contract for additional work for which **QUICK SHIPMENT** can be made.


JOSHUA HENDY MACHINE WORKS, Nos. 38 to 44 Fremont St. SAN FRANCISCO, CAL.

Manufacturers of and Dealers in

The Latest Improved
Quartz Milling, Pumping, Hoisting and Smelting Plants, Air Compressors and Rock Drills.
**"HENDY" IMPROVED "TRIPLE-DISCHARGE" TWO-STAMP QUARTZ MILLS
Boilers, Engines & Pumps of all capacities**

PLANS, SPECIFICATIONS and ESTIMATES OF COST SUBMITTED and CONTRACTS ENTERED INTO FOR FURNISHING and ERECTING MINING and MILLING PLANTS for all conditions of Use.



DOUBLE CYLINDER HOISTING ENGINE

BAKER IRON WORKS
LOS ANGELES, CALIFORNIA

Manufacturers of

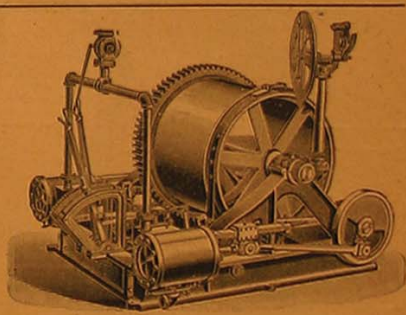
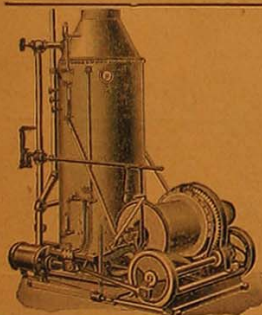
Mining and Milling Machinery, Atlas Engines and Boilers, Worthington Steam Pumps
**Water Works Machinery
A SPECIALTY**
**MINING ENGINES
Double AND Single Drum**

ALSO

Hoisting Engines and Electric Hoists for Every Known use
LAMBERT HOISTING ENGINE CO.

 SEND FOR OUR NEW
CATALOGUE R

125 POINIER STREET, NEWARK, N. J.


Mining Timbers and Construction Lumber
(Calcasieu Long Leaf Yellow Pine Lumber)

Prices given for delivery to any point in Mexico by Rail through Porfirio Diaz, Nuevo Laredo or Paso del Norte, and by Vessel through Gulf Ports of Tampico and Vera Cruz.

Bradley-Ramsay Lumber Co.

LOUISIANA, U. S. A.

ADDRESS INQUIRIES FOR PRICES TO

R. N. WATSON, AGENT.

APARTADO NO. 118 MONTERREY, N. L. MEXICO

PARKE & LACY COMPANY
21 and 23 Fremont St., San Francisco, Cal.

MINING MACHINERY
THE INGERSOLL-SERGEANT AIR COMPRESSORS AND ROCK DRILLS.

SOLE LICENSEE FOR THE MANUFACTURE AND SALE OF

THE ROPP STRAIGHT LINE FURNACE, For Roasting, Chlorinating and Desulphurizing Ores.

WE CARRY IN STOCK

Horizontal, Vertical and Portable Engines and Boilers. Rock Breakers, Cornish Rolls, Pulverizers, Concentrators, Ore Feeders. Hoisting Engines, Horse Power Hoisting Whims, Water Wheels, Steam Pumps, Ore Cars, Wire Rope, Ore Buckets, Water Buckets, Skips. Blowers and Exhaust Fans, Shafting and Pulleys, Belting, Oils and Mine Supplies. **Manganese Steel Shoes and Dies**

Estimates Furnished for Complete Plants for Hoisting Works, Smelters, Concentrating and Stamp Mills.

